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# Under the Radar: Comprehending Mental Health Needs and Services in School-Based Health Centers for Children and Adolescents

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## Under the Radar: Comprehending Mental Health Needs and Services in School-Based Health

Centers for Children and Adolescents

Ranbir Mangat Bains

University of Connecticut, 2015

Among children and adolescents, one in five suffers from mental health disorders. Those belonging to diverse racial and ethnic groups are less likely to receive adequate treatment than their white counterparts. They are also more likely to reside in households at or below the poverty level. Though public schools are the largest providers of mental health services, the services they provide are inconsistent. School-based health centers (SBHC) have been providing comprehensive health and mental health services within or near schools for over 40 years. Majority are located in urban, inner cities and evidence for their success in providing mental health services to children and adolescents has been growing.

The purpose of this dissertation was to holistically understand the mental health needs of children and adolescents and the role of SBHCs in providing mental health services in underserved areas. To attain this, three independent research studies were conducted. The first study was a metasynthesis to understand the experiences of African American adolescents in dealing with mental health conditions and accessing care. The second study was a systematic review to evaluate and assess the evidence of SBHCs in providing mental health services to children and adolescents. The third study was a secondary analysis of an existing database on the use of SBHC services in Connecticut. The philosophical foundations of this dissertation were rooted in pragmatism and the ecobiodevelopmental framework guided the study.

The three studies yielded abundant information on provision of mental health services in SBHCs. The experiences of the adolescents provided insight into the process of coming to terms with their mental health conditions and seeking help. The systematic review provided evidence that SBHCs provided much needed access to students with mental health issues and

they were more likely to use the services. The descriptive study provided evidence that most of the visits were for mental health reasons and males made more mental health visits than females. Together these findings provide a deeper understanding of mental health services in SBHCs.

Ranbir Mangat Bains-University of Connecticut, 2015

Under the Radar: Comprehending Mental Health Needs and Services in School-Based Health  
Centers for Children and Adolescents

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BS, University of Calgary, 1987

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Doctor of Philosophy Dissertation

Under the Radar: Comprehending Mental Health Needs and Services in School-Based Health

Centers for Children and Adolescents

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## **Chapter 1**

### **Introduction**

#### **Background of the Problem**

In the United States approximately 25% of adults suffer from mental illnesses and it is estimated that almost half of them exhibited symptoms by age 14 years (Kessler et al., 2007; Reeves et al., 2011). According to a recent report, mental health disorders have the highest burden of all diseases and are the leading cause of disability among adults (U.S. Department of Health and Human Services, 2013). Globally, a report by the World Health Organization determined that people with mental health disorders had a higher rate of mortality and were more likely to be homeless and incarcerated (Executive Board, 2012).

Nationally, there is growing recognition that mental health disorders are a major public health issue. There is extensive evidence linking mental health disorders to a higher risk of chronic disease and injury (Centers for Disease Control and Prevention, 2011). There is also evidence that untreated mental health disorders lead to lack of educational and income generating opportunities and deprivation of social supports (Veldman, Reijneveld, Almansa Ortiz, Verhulst, & Bultmann, 2015). The economic impact of unemployment among those with mental health disorders has been estimated at \$300,000 in individual lifetime loss of income (Smith & Smith, 2010). The cumulative health, economic and social effects of mental health disorders have serious implications not only for those who are ill, but also for their families, their communities and the nation.

To avoid the long-term burden of untreated mental health disorders, parity in health and mental health needs to be attained. To achieve this, a greater focus should be placed on early identification of and intervention for mental health disorders. Many factors impact access to mental health services, one of which is a delay in seeking treatment. The average timespan between onset of a mental health disorder and seeking treatment is usually a decade or longer, suggesting that adolescents experiencing mental health issues may not seek treatment until

they are young adults (Kessler et al., 2007). The consequences of untreated mental health conditions in adolescents are dire and can have tragic outcomes such as suicide, substance abuse, incarceration, school dropout and chronic health problems (Knopf, Park, & Mulye, 2008). Suicide is the third leading cause of death among adolescents and school dropout is reaching epidemic levels (Christenson, 2004; Schwarz, 2009). It is estimated that over half of adolescents who fail to complete high school have a diagnosable mental health disorder and are more likely to have contact with the criminal justice system (Christenson, 2004; Stagman & Cooper, April 2010; Week, 2010).

Research has shown that children and adolescents belonging to diverse racial and ethnic groups are less likely than their white counterparts to receive adequate mental healthcare (Stagman & Cooper, April 2010). They are also more likely to reside in households at or below the federal poverty level (Addy, Engelhardt, & Skinner, 2013). It is estimated that of the children and adolescents living in these households, 57% have mental health problems (Howell, 2004). Despite evidence of the need, there are limited mental health resources for children and adolescents living in urban and racially segregated communities (Anakwenze, 2013; Dinwiddie, Gaskin, Chan, Norrington, & McCleary, 2013). This disparity combined with the national shortage of mental health professionals qualified to take care of children and adolescents is a matter that requires urgent attention (Thomas & Holzer, 2006).

Untreated mental health conditions in persons with limited access to adequate resources are a major public health concern. In 2011, childhood mental health conditions were identified as the most costly condition in terms of direct medical expenditures at \$13.8 billion with a mean average expenditure of \$2465 per child (Soni, April 2014). To avoid the social and economic consequences of unmet mental health care needs of children and adolescents, creativity and flexibility are needed in healthcare delivery systems.

### **Statement of the Problem**

In the goals set out in Healthy People 2020, mental health care of children and adolescents has been identified as a priority area (U. S. Department of Health and Human Services, 2013). Research has indicated that, similar to the adult population, about 25% of children and adolescents suffer from mental health issues and of these only 36% receive mental health services (Merikangas et al., 2011).

In the United States, most of children and adolescents living in urban areas attend public schools. Due to the mandates of the American Disabilities Act, public schools are the largest providers of mental health services to children and adolescents (Burns et al., 1995; Leaf et al., 1996; Merikangas et al., 2011). However, the services are not consistent and vary from district to district depending on staffing, which in turn, is subject to budgetary constraints of each district (Jacob & Coustasse, 2008; Oliff, Mai, & Leachman, 2012). Additionally, the services provided may be limited because the focus of school mental health services is based on removal of psychological barriers that impede educational outcomes of the students as opposed to long term outcomes. Ideally, availability of comprehensive mental health services that are easily accessible and offered within the school environment would be effective in reaching children and adolescents who may otherwise have no access.

For over 40 years, school-based health centers (SBHC) have been providing comprehensive health and mental healthcare in familiar settings within or near schools. Currently, there are close to 2000 SBHCs nationally and over 70% have a mental health provider on staff (Lofink et al., 2013). Over half of the SBHCs are located in inner cities where the majority of students are from ethnically and racially diverse backgrounds which have historically experienced poverty and inadequate access to health care (Lofink et al., 2013).

Since their inception, evidence on the success of mental health services in SBHCs has been growing. Research studies have shown that when mental health services are available at SBHCs, they are successful in reaching children and adolescents who may otherwise go without care (Amaral, Geierstanger, Soleimanpour, & Brindis, 2011; Balassone, Bell, &

Peterfreund, 1991; Juszczak, Melinkovich, & Kaplan, 2003). There is also evidence that those with psychological problems are more likely to access mental health services in SBHCs (Amaral et al., 2011; Juszczak et al., 2003). Likewise when there is access to SBHCs, those who have mental health issues are more likely to seek care (Santor, Poulin, LeBlanc, & Kusumakar, 2006). In longitudinal studies, use of mental health services in SBHCs increase the longer the services are provided (Guo, Wade, & Keller, 2008). Additionally, adolescents seek mental health services in SBHCs for high risk behaviors such as suicide ideation, pregnancy and violence (Amaral et al., 2011; Szumilas, Kutcher, LeBlanc, & Langille, 2010).

Being within or near schools, SBHCs are ideally positioned to provide much needed access to health and mental health services to children and adolescents living in areas of disparity. Evidence for the success of SBHCs in providing mental health services exist, however it offers an incomplete view of the services provided to children and adolescents in urban, racially segregated areas of poverty.

### **Purpose of Study**

This dissertation was undertaken to holistically understand the mental health needs of children and adolescents in urban, racially segregated areas of poverty and to assess the outcomes of mental health services provided to this population by SBHCs. To achieve this purpose, three research studies on different aspects of mental health services in SBHCs were conducted.

As mentioned earlier, the majority of the SBHCs are located in areas that are ethnically and racially diverse. However, there is scant literature providing an insight into the experiences of racially and ethnically minority children and adolescents in seeking mental health care. To gain this insight, the first of the three studies was a metasynthesis aimed at understanding the experiences of African American adolescents in dealing with mental health conditions and accessing care.

There are a number of published studies that assess the provision of mental health services in SBHCs, but a comprehensive synthesis on their findings did not exist. Thus, the second study was a systematic review that aggregated and evaluated the available evidence on the provision of mental health services to children and adolescents through SBHCs.

The objective of the third study was to obtain new information describing utilization of SBHCs for mental health services in a medium sized urban city. It entailed a secondary analysis of an existing database on use of SBHC services in New Haven, Connecticut.

### **Research Questions**

The following research questions were addressed by the studies presented in this dissertation:

1. What are the experiences of African American adolescents in dealing with mental health conditions and mental health services?
2. What is the evidence on the provision of mental health services in SBHCs and what factors influence access and utilization of the services?
3. What are the utilization patterns of mental health services at SBHCs in an ethnically and racially diverse urban setting?

## **Philosophical and Theoretical Foundations**

### **Philosophical Foundations**

The philosophical foundations of this dissertation were rooted in pragmatism. The core of pragmatism is the generation of knowledge for practical use. Theoretically, pragmatism maintains that truth is related to the practicality and the usefulness of a solution. Thus truth is only true when it is useful (Polifroni & Welch, 1999). The core of pragmatism is the generation of knowledge for practical use. Pluralism as a component of pragmatism maintains that there are many ways of approaching truths about the world. Pragmatism is receptive to other sources of knowledge and allows a researcher to approach each problem with the best method. It pulls together many ideas and uses “what works” while valuing both objective and subjective knowledge (Creswell & Plano Clark, 2011).

The core mission of SBHCs is provision of comprehensive, high quality, accessible healthcare within a school setting where children and adolescents spend a majority of their waking hours. The concept of healthcare delivery within a school aligns with pragmatism. It uses the practicality of setting healthcare delivery within a school to provide access to healthcare to children and adolescents who may otherwise have limited or no access.

### **Theoretical Framework**

An ecobiodevelopmental (EBD) framework demonstrating the complex relationships between the environment and adversities in childhood on long term physical and mental health outcomes guided this study (Shonkoff, Garner, Committee on Psychosocial Aspects of Child and Family Health, Committee on Early Childhood, Adoption, and Dependent Care, & Section on Developmental and Behavioral Pediatrics, 2012). Children living in low socioeconomic areas are often exposed to frequent or prolonged stressors such as poverty, violence, substance abuse and decaying neighborhoods (Price, Khubchandani, McKinney, & Braun, 2013). Prolonged activation of the stress response is the most dangerous form of stress and results in toxic stress which may have long term effects (Middlebrooks, J.S., & Audage, N.C., 2008). It is hypothesized that toxic stress can disrupt brain and other organ and metabolic development during childhood, resulting not only in learning and behavior impairments but also in stress related mental and physical ailments (Shonkoff et al., 2012). Such disruptions can impact life experiences, lifestyle choices and epigenetics alterations in childhood and through the lifetime, thus setting patterns of life long behavior and physiological reactions (Williams Shanks & Robinson, 2013).

The EBD framework provides a context for health promotion and disease prevention in children who experience adverse events which result in health and educational disparities across their life span and generations (Shonkoff et al., 2012). The multiple domains within the framework address the interaction of ecology and biology in childhood that effect lifelong

wellbeing and that provide myriad opportunities for health and education agencies to intervene to ensure children attain optimal health.

### **Chapter Review and Introduction**

This chapter has described the problem of mental illness in children and adolescents in limited resource settings in the United States. It has provided background on the contributions that SBHCs can make in addressing this public health issue and has highlighted the potential significance of research on mental health services delivered in the SBHC setting. Within this context, it has stated the research questions for the studies presented in this dissertation. Additionally, it has outlined the philosophical underpinning and theoretical framework that guided the studies. The three studies are presented individually in Chapters 2, 3 and 4. Chapter 5 is a discussion of the implications of the studies' for the growth and sustainability of SBHCs.

Mental health issues in children and adolescents have a significant impact on their families and lifetime outcomes. To provide adequate and appropriate care which will allow them to reach their full potential it is essential to gain a holistic understanding of mental health services in SBHCs. This research will attempt to provide that understanding through three diverse studies.

## References

- Addy, S., Engelhardt, W., & Skinner, C. (2013). *Basic facts about low-income children under 18 years, 2011*. (Fact sheet). New York: National Center for Children in Poverty.
- Amaral, G., Geierstanger, S., Soleimanpour, S., & Brindis, C. (2011). Mental health characteristics and health-seeking behaviors of adolescent school-based health center users and nonusers. *The Journal of School Health, 81*(3), 138-145. doi:10.1111/j.1746-1561.2010.00572.x; 10.1111/j.1746-1561.2010.00572.x
- Anakwenze, U., Daniyal. (2013). Mental health and poverty in the inner city. *Health & Social Work, 38*(3), 147-157. doi:10.1093/hsw/hlt013
- Balassone, M. L., Bell, M., & Peterfreund, N. (1991). A comparison of users and nonusers of a school-based health and mental health clinic. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine, 12*(3), 240-246.
- Burns, B. J., Costello, E. J., Angold, A., Tweed, D., Stangl, D., Farmer, E. M., & Erkanli, A. (1995). Children's mental health service use across service sectors. *Health Affairs (Project Hope), 14*(3), 147-159.
- Centers for Disease Control and Prevention. (2011). *Public health action plan to integrate mental health promotion and mental illness prevention with chronic disease prevention, 2011–2015*. Atlanta: U.S. Department of Health and Human Services.
- Christenson, S. L. T., Martha L. (2004). School dropouts: Prevention considerations, interventions, and challenges. *Current Directions in Psychological Science (Wiley-Blackwell), 13*(1), 36-39. doi:10.1111/j.0963-7214.2004.01301010.x



- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research*. (2nd ed.). Thousand Oaks, CA 91320: Sage Publications, Inc.
- Dinwiddie, G. Y., Gaskin, D. J., Chan, K. S., Norrington, J., & McCleary, R. (2013). Residential segregation, geographic proximity and type of services used: Evidence for racial/ethnic disparities in mental health. *Social Science & Medicine* (1982), 80, 67-75.  
doi:10.1016/j.socscimed.2012.11.024 [doi]
- Executive Board, 1. (2012). *Global burden of mental disorders and the need for a comprehensive, coordinated response from health and social workers at the country level*. (No. EB130.R8). World Health Organization.
- Guo, J. J., Wade, T. J., & Keller, K. N. (2008). Impact of school-based health centers on students with mental health problems. *Public Health Reports*, 123(6), 768-780.
- Howell, E. (2004). *Access to children's mental health services under medicaid and SCHIP*. Washington D.C.: Urban Institute.
- Jacob, S., & Coustasse, A. (2008). School-based mental health: A de facto mental health system for children. *Journal of Hospital Marketing & Public Relations*, 18(2), 197-211.  
doi:10.1080/15390940802232499
- Juszczak, L., Melinkovich, P., & Kaplan, D. (2003). Use of health and mental health services by adolescents across multiple delivery sites. *Journal of Adolescent Health*, 32(6), 108-118.  
doi:http://dx.doi.org/10.1016/S1054-139X(03)00073-9
- Kessler, R. C., Amminger, G. P., Aguilar-Gaxiola, S., Alonso, J., Lee, S., & Ustun, T. B. (2007). Age of onset of mental disorders: A review of recent literature. *Current Opinion in Psychiatry*, 20(4), 359-364. doi:10.1097/YCO.0b013e32816ebc8c

- Knopf, D., Park, M. J., & Mulye, T. P. (2008). *The mental health of adolescents: A national profile*. University of California, San Francisco: National Adolescent Health Information Center.
- Leaf, P. J., Alegria, M., Cohen, P., Goodman, S. H., Horwitz, S. M., Hoven, C. W., . . . Regier, D. A. (1996). Mental health service use in the community and schools: Results from the four-community MECA study. *methods for the epidemiology of child and adolescent mental disorders study. Journal of the American Academy of Child and Adolescent Psychiatry*, 35(7), 889-897.
- Lofink, H., Kuebler, J., Juszczak, L., Schlitt, J., Even, M., Rosenberg, J., & White, I. (2013). *2010-2011 school-based health alliance census report*. Washington, D.C.: School-Based Health Alliance.
- Merikangas, K. R., He, J. P., Burstein, M., Swendsen, J., Avenevoli, S., Case, B., . . . Olfson, M. (2011). Service utilization for lifetime mental disorders in U.S. adolescents: Results of the national comorbidity survey-adolescent supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, 50(1), 32-45. doi:10.1016/j.jaac.2010.10.006; 10.1016/j.jaac.2010.10.006
- Middlebrooks, J.S., & Audage, N.C. (2008). *The effects of childhood stress on health across the lifespan*. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.
- Oliff, P., Mai, C., & Leachman, M. (2012). *New school year brings more cuts in state funding for schools*. Washington D.C: Center on Budget and Policy Priorities.

- Polifroni, E. C., & Welch, M. (1999). In Polifroni E. C., Welch M. (Eds.), *Perspectives on philosophy of science in nursing. A historical and contemporary anthology*. Philadelphia, PA: Lippincott.
- Price, J. H., Khubchandani, J., McKinney, M., & Braun, R. (2013). Racial/ethnic disparities in chronic diseases of youths and access to health care in the united states. *BioMed Research International*, 2013, 787616. doi:10.1155/2013/787616; 10.1155/2013/787616
- Reeves, W. C., Strine, T. W., Pratt, L. A., Thompson, W., Alluwalhia, I., Dingra, S. S., & et al. (2011). *Mental illness surveillance among adults in the united states*. ( No. 60(3):1–32). Atlanta, GA: MMWR.
- Santor, D. A., Poulin, C., LeBlanc, J. C., & Kusumakar, V. (2006). Examining school health center utilization as a function of mood disturbance and mental health difficulties. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, 39(5), 729-735. doi:10.1016/j.jadohealth.2006.04.010
- Schwarz, S. W. (2009). *Adolescent mental health in the united states: Facts for policymakers*.
- Shonkoff, J. P., Garner, A. S., Committee on Psychosocial Aspects of Child and Family Health, Committee on Early Childhood, Adoption, and Dependent Care, & Section on Developmental and Behavioral Pediatrics. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129(1), e232-46. doi:10.1542/peds.2011-2663; 10.1542/peds.2011-2663
- Smith, J. P., & Smith, G. C. (2010). Long-term economic costs of psychological problems during childhood. *Social Science & Medicine (1982)*, 71(1), 110-115. doi:10.1016/j.socscimed.2010.02.046; 10.1016/j.socscimed.2010.02.046

- Soni, A. (April 2014). *The five most costly children's conditions, 2011: Estimates for U.S. civilian noninstitutionalized children, ages 0–17.* ( No. Statistical Brief #434). Rockville, MD.: Agency for Healthcare Research and Quality.
- Stagman, S., & Cooper, J. L. (April 2010). *Children's mental health; what every policymaker should know.* (policy brief). Mailman School of Public Health, Columbia University: National Center for Children in Poverty.
- Szumilas, M., Kutcher, S., LeBlanc, J. C., & Langille, D. B. (2010). Use of school-based health centres for mental health support in cape breton, nova scotia. *Canadian Journal of Psychiatry, 55*(5), 319-328.
- Thomas, C. R., & Holzer, C. E.,3rd. (2006). The continuing shortage of child and adolescent psychiatrists. *Journal of the American Academy of Child and Adolescent Psychiatry, 45*(9), 1023-1031. doi:10.1097/01.chi.0000225353.16831.5d [doi]
- U.S. Department of Health and Human Services. (2013). Healthy people 2020. Retrieved from <http://www.healthypeople.gov/2020/LHI/mentalHealth.aspx>
- Veldman, K., Reijneveld, S. A., Almansa Ortiz, J., Verhulst, F. C., & Bultmann, U. (2015). Mental health trajectories from childhood to young adulthood affect the educational and employment status of young adults: Results from the TRAILS study. *Journal of Epidemiology and Community Health, doi:jech-2014-204421* [pii]
- Week, E. (2010). Diplomas count 2010: Graduation by the numbers: Putting data to work for student success. *Washington, DC: Education Week.* Retrieved August, 28, 2010.

Williams Shanks, T. R., & Robinson, C. (2013). Assets, economic opportunity and toxic stress: A framework for understanding child and educational outcomes. *Economics of Education Review*, 33, 154-170. doi:<http://www.sciencedirect.com/science/journal/02727757>

## **Chapter 2**

### **Paper 1**

#### **Abstract**

**Problem:** African American adolescents access mental health services at lower rates than their Caucasian counterparts thus resulting in a large disparity. The purpose of the study was to understand the experiences of African American adolescents in dealing with mental health conditions and what led to or hindered their access to mental health services.

**Methods:** A metasynthesis of six qualitative studies was conducted using the meta-ethnographic approach by Noblit and Hare.

**Findings:** Four reciprocal themes illuminating the experiences of African American adolescents with mental health issues were revealed: uncertainty and soul searching, strength of the inner circle, shame and reluctance, belief in the system. Each of the themes were explored in detail through the rich quotations of the adolescents.

**Conclusions:** The findings provided an insight and understanding into the process the adolescents went through before seeking help and may aid as a framework for designing interventions to better serve this vulnerable population.

*Key words:* mental health service, African American, adolescent, depression, barrier, help-seeking.

### African American Adolescents and Mental Health Care: A Metasynthesis

Nationwide, nearly 1 in 5 children and adolescents experience symptoms of mental health disorders, and of those, only 15% to 20% receive services (Knopf et al., 2008). Though the overall statistics are alarming, more disturbing is the rate at which adolescents seek mental health services. In 2009, the Substance Abuse and Mental Health Services Administration reported that less than 10% of African American and Hispanic adolescents make use of outpatient mental health services. The rate among white adolescents was only slightly better at 12.7% (Substance Abuse and Mental Health Services Administration, 2009b). Studies have also shown that African American youth are less likely to receive outpatient and inpatient mental health treatment than their white counterparts (Alexandre, Younis, Martins, & Richard, 2010; Wu, Katic, Liu, Fan, & Fuller, 2010). Nevertheless, African American adolescents are more likely than white adolescents to access school based mental health services (Husky, Kanter, McGuire, & Olfson, 2012). African American youth are disproportionately represented within the juvenile justice system and 60-70% of them have been diagnosed with mental health disorders (Committee on Adolescence, 2011; Stagman & Cooper, April 2010).

The number of African American adolescents with mental health disorders and the lack of adequate utilization of mental health services are of great concern, especially in terms of economic and societal loss. School dropout rates are highest among minority adolescents and it is estimated that over half of adolescents who fail to complete high school have a diagnosable mental health disorder (Christenson & Martha, 2004; Week, 2010). These disorders impact their adult lives with poorer mental health outcomes and higher rates of unemployment resulting in an individual lifetime cost of loss of income being estimated at \$300,000 (Smith & Smith, 2010). Being cognizant of the short and long term impact of mental health disorders on adolescents, it is imperative that mental health nurses and nurse practitioners understand what the needs of this group of adolescents are, thereby providing them with timely mental health care.

Individual qualitative studies have attempted to provide insights into different aspects of what African American adolescents look for in mental health services. While useful, the studies do not provide a complete understanding of the phenomenon which a synthesis of the studies would offer. A metasynthesis is an effective approach for synthesis of studies, as it provides an understanding of heterogeneous results from carefully selected qualitative studies hence creating a deeper understanding of the phenomenon. On the contrary, a meta-analysis aggregates and compares data for statistical significance from quantitative studies and would not provide a comprehensive understanding of the experiences of the adolescents. The purpose of this metasynthesis is to synthesize qualitative studies on African American adolescents and their engagement in mental health services, thus providing an understanding of their experiences.

In conducting a metasynthesis, the researcher used information from qualitative studies on the experiences of African American adolescents to explore the phenomenon being studied. Metasynthesis is “the theories, grand narratives, generalizations, or interpretive translations produced from the integration or comparison of findings from qualitative studies” (Sandelowski, Docherty, & Emden, 1997). According to Noblit and Hare (1988, p. 25), metasynthesis is the “translation of qualitative studies into one another” and not the development of overarching generalizations as in meta-analysis. In conducting a metasynthesis the researcher interprets the findings from qualitative studies.

Though studies have been done on the perceptions of adolescents on areas of mental health, no metasynthesis exists on what the experiences of African American adolescents are in dealing with mental health issues and mental health care. Synthesis of findings of qualitative research in this area may add to existing knowledge and may reveal a new kernel of knowledge that benefits this group of adolescents and providers who take care of them.

## **Method and Procedure**



The purpose of this study was to provide an in depth understanding of the experiences African American adolescents have in dealing with mental health conditions and mental health services. This study is presented from their view point as they deal with their mental health conditions and navigate the mental health system.

### **Data Analysis**

The approach for data analysis on this metasynthesis of studies of experiences of African American adolescents in dealing with mental health conditions and mental health services was based on Noblit and Hare's (1988) method. This method was selected because it is best suited for synthesizing qualitative data and originated in the interpretive paradigm from which most methods of qualitative research methods developed. Their approach consists of seven phases as outlined in Table 1.

### **Sample**

Initially a review of literature was conducted using online databases such as CINAHL, PubMed, PsycINFO, ERIC, Social Work Abstracts, Academic Search Premier and Dissertation Abstracts. These databases were searched extensively and relevant studies were reviewed. For the purpose of this study, qualitative research studies published between 1999 and 2012 were selected. Key words used in the search were *mental health services, African American, adolescent and experiences*. Additional terms such as *depression, barriers and help seeking* were also used and reference lists of each of the articles selected were closely studied. Though this study did not focus on specific mental illnesses, the search term *depression* was included since it is the most reported mental health disorder and places high burdens on individuals, families and society (Rushton, Forcier, & Schectman, 2002).

The criteria for inclusion of studies included that the majority of the sample (over 75%) was African American adolescents, the studies were not focused on the experiences of a specific mental illness and the research design was qualitative or had a qualitative component. Over 150 qualitative articles that addressed the experiences of adolescents with mental health

issues were found, however fewer than 20 included African American adolescents as the majority of the sample. In reviewing the articles with a majority sample of African American adolescents, those that focused on specific mental illnesses were not included. Excluding those articles, the final review of literature retrieved 9 qualitative studies on African American adolescents and mental health services. Of these, one focused on the perceptions of the families and not the adolescents and the other had very few adolescents as participants. The sample in the third study did not specify that the adolescents had mental health issues. Thus, for the purposes of this study 6 research studies on African American adolescents with mental health issues were identified. The descriptive and methodological characteristics of the samples are illustrated in Tables 2 and 3 respectively. In two of the three articles by Lindsey, the study participants were the same group of adolescents however; different attributes were focused on (Lindsey, 2010; Lindsey et al., 2006). In one study, the help-seeking behaviors and attitudes towards mental health were studied and in the other, perceptions of adolescents towards mental health services and providers were studied. In the calculation of the sample, the participants in these two studies were only counted once. All the other studies used different samples. The focus of three of the six articles and the dissertation was on depression (Hannor-Walker, 2008; Lindsey, 2010; Lindsey, Joe, & Nebbitt, 2010; Lindsey et al., 2006). Two articles did not specify mental health diagnoses for the participants (Nabors, Weist, & Tashman, 1999; Shelton, 2004). Three of the studies appeared in social work journals, one in a nursing journal, one in a psychiatry journal and one was a dissertation. The dissertation was a doctoral dissertation in the discipline of social work (Hannor-Walker, 2008).

The studies involved 113 participants of whom 75 were males and 31 were females. In the study by Nabors et al. (1999) of the 37 participants, 7 were Caucasian and not included in the final sample number. The study was considered relevant for this synthesis since it was conducted in a high school that was predominantly African American (80%), and the focus groups had few minority Caucasian participants. Of the 6 studies, 4 used qualitative descriptive

designs, one used grounded theory and one used a triangulation design. All the studies were done in the United States.

## **Results**

The six studies that were included in the analysis revealed resonant metaphors. Each of the metaphors represented an interpretation that was grounded in the text of the article and is illustrated in Table 4. Some of the studies had several metaphors while others had one or two. In the article by Lindsey (2010), there were 4 metaphors whereby the adolescents questioned their mental health status, their perceptions and relationships with their family, friends and mental health providers. In the study by Nabors et al. (1999), there was one metaphor on the thoughts of the adolescents on mental health treatment. Once the metaphors from each study were identified, they were then juxtaposed and their interactions in each study were compared with the metaphors and their interactions in the other studies. Metaphors such as “Doubt and hesitation in recognition of mental health issue” encompassed the 3 metaphors listed in the second column in Table 4. The establishment of the relationship between the 6 studies and the translation of these metaphors resulted in the development of 4 themes. Each of the themes will be exemplified through the rich quotations of African American adolescents who were questioned about their experiences and mental health services.

### **Uncertainty and Soul Searching**

Middle adolescence is a period when peer relationships become important as teenagers attempt to further separate from their families in search of their own identity. The ability to think abstractly and reason continues to grow during this period and there is an amplified awareness of own feelings. The increased intellectual ability leads to realization of their own limitations and may present a time of uncertainty and soul searching (Neinstein, 2002).

The recognition of mental health issues during this phase of development may be especially challenging for adolescents as they come to terms with their limitations. This was evident in some of the studies where adolescents were skeptical that their mental health issues

were related to their problematic functioning. One adolescent who had been identified as depressed thought his issues were associated with his physical health when he said:

No. Because it was wrong the whole time [referring to formal mental health treatment]. It was a waste of time, honestly. It was an idea to get me a physical. I got a physical. They said my tonsils were huge... so what happened is I took a sleep study and they found out it was a physical thing. And the problem was that I was snoring and stopped breathing in my sleep. Not that I had depression. And they say that affected my schoolwork. So once that happened, we got my tonsils taken out. It had nothing to do with my mental health... (Lindsey, 2010, p.166)

Adolescents in the juvenile justice system also had a hard time recognizing that their mental health issues may have played a part in their incarceration. One adolescent described it as: "It's your mind, your attitude-I just can't stay out of trouble" (Shelton, 2004, p.132). Another one blamed his anger and said: "I got a short fuse, my anger builds up. Not sure why-then it blows. Nothin' I can do" (Shelton, 2004, p.132).

Adolescence is a period of development of abstract thinking and logic so it was intriguing to note that the uncertainty and soul searching led one participant to blame a scary book for her issues when she said:

Well, it [the book] was talking about religion, and it was talking about devils, demons, and I got scared about it, got a little paranoid about it, and then once I went to someone for help about it, it got worse, because I was listening to someone who was overreligious. And told me that a girl was named after a demon or devil and let her change her name, and it's scary to know that there are people out there that do that. (Hannor-Walker, 2008, p.93)

Despite the uncertainty in recognizing their mental health issues it was heartening to note that those adolescents who thought they had serious problems were not apprehensive

about seeking help and were actively involved in the decision as expressed by this participant:

“I’d say it was my decision because I just had to talk to someone” (Lindsey, 2010, p.167).

### **Strength of the Inner Circle.**

Adolescence is a time of rapid change whereby a child metamorphoses into an adult. Though peer relationships are an attribute of this stage, family relationships are very important as well (Neinstein, 2002). African American youth are no different in that respect. They placed great importance on the influence of those close to them in giving them advice on how to handle their mental health issues. This theme was evident in four of the articles. Adolescents felt that it was important to resolve their issues with people who knew them the best because those people were able to recognize if something was not right. This was well articulated by a participant who said:

My first resort [when dealing with a depressive symptom] would be to go to my family...you really don’t want to skip over them because they really have a good input on you and they really look at you every day and know a lot of things about you so they could also help you. (Lindsey et al., 2010, p.72)

Though adolescents sought advice from other family members, mothers played a prominent role in the inner circle because the adolescents felt their mothers had the best perspective on what they were going through and would be able to offer the best advice. One adolescent described it as:

When problems are too bad where I just can’t, I can’t like stop them, I can’t do nothing, can’t control it or nothing. I try to go out and play, but for some reason it pops back up in my head, and I can’t get it out so I go to her [referring to his mother]. (Lindsey et al., 2006, p.52)

Mothers also played an important role in getting adolescents to seek mental health services. Depending on the condition, mothers had either referred or mandated the adolescent to seek treatment (Lindsey et al., 2006).

Though social determinants that affect adolescents and their contact with the juvenile justice system are wide and varied, adolescents who were incarcerated and receiving mental health services through the juvenile justice system also emphasized the importance of having family support (Shelton, 2004). They expressed a certain disappointment in their families and blamed them directly or indirectly for the incarceration. Interestingly, it was the mother who was held responsible for the lack of parenting more often than not. One adolescent female described lack of parenting as the reason for her incarceration when she said:

I'd see my mom during the week....weekends she has an attitude, don't want to see me. She doesn't come home. So why should I be home? I just do what I want, go out and hang around. That's how I got into trouble. (Shelton, 2004, p.132)

Other participants did not blame their parents directly even though they felt that it was due to their lack of parenting skills that they had gotten into trouble. One of the participants put it as:

It ain't her [speaking of her mother] fault. I thought I knew it all. I didn't want to listen. I ran away. But she kep' tellin' me to come home. I tried but I just couldn't take her rules. She didn't stick to her own rules, so why should I? It was stupid. I had no place to go. I ended up living in a car, doin' drugs. I got picked up. (Shelton, 2004, p.132)

A reliance on the inner self to cope with mental health issues was expressed by some adolescents. They felt they could cope by turning inward. Some felt that spending time alone helped them think about their problems and cope with them better. They used this time to come to terms with their issues before reaching out to family. One participant said: "I try to go within myself so I pretty much get the answers. It's like a self-conscious" (Lindsey et al., 2010, p.471). This sentiment was expressed by adolescents across different settings. An adolescent in southwest Georgia who had experienced depression expressed it as: "I just, I just don't want to be bothered with nobody, really; I want to be in my room" (Hannor-Walker, 2008, p. 86).

When dealing with mental health issues, peers were not sought out as a support. Most adolescents did not want to talk to their friends about these issues because they felt they would not be helpful nor would they understand what they were going through. Even if told of their issues, they felt their peers affected them in a negative manner. One participant put it as: “I’ve already told them. They didn’t believe me at first, but later they just seem like they don’t care” (Hannor-Walker, 2008, p. 91).

### **Shame and Reluctance**

African American adolescents and adults are less likely to seek mental health services especially if they perceive that their use of services may be stigmatized by their peers and family (Lindsey et al., 2006). Historically, the years of oppression and discriminatory practices have had an impact on the faith they place on the health care system (Breland-Noble, 2004). This was evident in several of the 6 studies whereby adolescents expressed reluctance in seeking help due to perceived shame or guilt. One group stated that expressing emotions was a sign of weakness so therefore presented a barrier to seeking help (Lindsey, 2010). An adolescent in that group expressed it as:

[African American adolescent males] feel as though that-okay, it would be a shame, some of them. It would be a shame to go to a counselor because, like I said before, either people that they’re around or them, themselves, should have the answers...Rather than taking initial precautions for themselves, they’ll just base it off of their friends or who they’re normally around, you know, who basically leads them. (Lindsey, 2010, p.168)

The shame and embarrassment were also evident when adolescents expressed that they would not tell their peers that they were receiving mental health services because it would affect their emotions negatively. This was expressed well by one respondent in the study who said: “They probably think- they may joke around and say like, it is bad for me, you know, like I

am going crazy or something so I would like keep it to my family and myself” (Lindsey et al., 2006, p.53).

In focus groups conducted in a high school, students reported that being labeled by peers as being “crazy” hindered participation in therapy (Nabors et al., 1999). Adolescents in the juvenile justice system also expressed similar sentiments. They were secretive about their mental health issues and treatment. One of the participants said: “I ain’t saying nothin’- stuff like that ain’t supposed to happen to kids” (Shelton, 2004, p.132). The shame and hopelessness associated with mental health issues was also evident and expressed well by an adolescent who said: “I gave up on myself. I jus’ can’t do it no more. I think I’m bad so I jus’ go out and act like a fool. It jus’ makes things worse” (Shelton, 2004, p.132).

Most adolescents were sensitive to the negative implications they perceived and did not want anyone to know they were seeking mental health services. They were also not comfortable bringing up their issues in therapy. One adolescent said: “But I don’t usually---I don’t like to talk about it much. You know, it is kind of aggravating. It makes me feel weak when I talk to people about my problems” (Hannor-Walker, 2008, p. 84). Discomfort with mental health issues was evident in the coping strategies used by adolescents in dealing with depression. The majority chose to suppress or hide their feelings or emotions (Hannor-Walker, 2008). The reason may have been expressed by the adolescent who said:

Well, they just, I never really, They try to be, I don’t know how, I don’t know what I’m looking for. But try to act all strong and put on, like they are big and bad type thang. Instead of, you know, talking about it. ‘Cause I can talk to my friends, like Black guy friends I have, but they won’t tell me exactly how they are feeling. They give me a little, a little bit, but they won’t tell exactly because they’re scared that it is a weakness, I guess. (Hannor-Walker, 2008, p. 105)

The sense of pride and masculinity played a role in the stigma associated with seeking mental health services, especially for the males. Adolescent males who sought mental health



services were perceived as weak and effeminate and as being unable to handle their emotions.

As one adolescent put it:

(Asking for help)...means that you are gay. That's how they [African American adolescent boys] interpret it. It means-well, I mean you go down the line. If you ask for help, or if you cry, or if you look emotional, if you feel depressed, that means you are soft. If you are soft, then you're gay and you're not hard and not tough....You can't let anybody know that you're soft. I swear it is like being in a jail. (Lindsey et al., 2006, p.54)

The burden of mental health issues and the barriers associated with seeking appropriate services expressed by the adolescents varied from being perceived as a sign of weakness, to personal beliefs of shame and embarrassment. Overcoming these barriers and the negative connotations of mental health issues weighed heavily on these adolescents.

### **Belief in the System.**

Given that adolescence is a vulnerable time in human development and a gateway into responsibilities associated with adulthood, accessing mental health services may become very complex for those who have mental health issues. Being able to trust the system to provide the care they seek may be essential in providing the care they need. At this stage of development adolescents may be egocentric and see themselves as unique (Neinstein, 2002). They are uncertain if the uniqueness of their problem and situation is understood by the providers and if the providers are really advocating for their needs. African American adolescents may be especially vulnerable to this opinion since they are exposed to negative perceptions of the system within the family and community. Additionally, there is a perception that intervention by social service agencies may potentially lead to punitive interventions (Breland-Noble, 2004).

This emotion was expressed by one adolescent as:

The system [formal mental health service delivery system]... because I know there's some people that, "Okay, well he's bad." They [mental health clinicians/practitioners]

might bring it up at like the little meetings that they have, because I know they have, because they tell me. I brought-they bring it up, and they're like, "Well, he's ADHD." And they have no choice to go along with it. Not everybody agrees with everybody. Unfortunately, in order to keep their job, they got to, "Okay, he's ADHD. We are going to have to put him in the program." They may not agree with it personally, but, you know, job wise they have to go along with [it] because that is what they're doing. That's their profession. So I can't fault all of them for that, but the system is [expletive deleted] up for real. (Lindsey, 2010, p.168)

The fear of being stereotyped and misunderstood led to the feeling of being unsure if the system would provide appropriate care especially since the participants felt that the providers already had misconceptions about African Americans. One adolescent referred to that when he said:

Like this one case that they had. This one dude, he's Black, and they just straight went to him with the Ritalin. Like they didn't want to help him. They didn't want to talk to him. They just went straight to Ritalin. [He went to professional help] because his dad died. And he was failing in school because nobody would really help him. I tried to help him, but he was too bad down and I couldn't really help him with the grades and stuff. (Lindsey, 2010, p.170)

Environmental and life experiences of many African American adolescents hinder them from being able to trust easily. This is evident when it comes to seeking therapy and was illustrated by one adolescent who said: "I couldn't-I don't know. I don't know. I couldn't do that [go to therapy]...Because I wouldn't know who I am talking to. I don't even talk to nobody on the streets if I don't know them" (Lindsey, 2010, p.172).

In discussing provider attributes, those who shared personal experiences and provide care in the context of their culture and background were preferred. One adolescent expressed it as: "She stays upfront with me and my mom. She doesn't like to go to the books. She shares

her experiences with us, too. She uses those as examples and understandings. And the other lady was using a book” (Lindsey, 2010, p.171).

Therapists who shared their lives with adolescents and had a genuine interest were well received, especially if what they shared was similar to what the adolescent was experiencing. The perception of a forged alliance over a similar experience with the therapist led to a favorable relationship. This was evident in the remarks made by this adolescent who said:

Because-it’s not because he was Black. It was because he was telling me how-he wasn’t talking to me like, like it was his job. He was talking to me like, “Look man, when I was younger, they labeled me as a cut-up.” He would tell me stuff and I could hear what he was saying because of the way he was talking to me. Not because he was Black. Because the shit he was saying, I hadn’t told him but I had to go through the shit that he was talking about. He would remind me of something that happened to me the other day. That was exactly what I am talking [about]. I don’t care whether they are Black or White. As long-don’t talk to me like I am a [expletive deleted] project. (Lindsey, 2010, p.172)

In focus groups as well, therapists who were friendly, caring and pleasant were valued. Adolescents also valued the personal connection if the therapists shared information about their own experiences and were good listeners (Nabors et al., 1999). They did not like therapists who took notes while they were in session and appreciated a little distance. Therapists who got “too personal too fast” were not seen favorably (Nabors et al., 1999). On the other hand once they had established a trusting relationship with a therapist and he or she left, they had a hard time readjusting to a new therapist. This was well articulated by an adolescent who said:

We were attached to her (former therapist) because we talked with her for a long time and then a new person came. She (former therapist) already knew what was going on and we had to start all the way over again and explain everything. It was like she (new therapist) was invading your privacy. (Nabors et al., 1999, p.47)

When adolescents felt they could trust the therapist, they were able to benefit tremendously from it. This was illustrated by an adolescent who said: “At first I didn’t feel comfortable at all, but when I got to know her, it was like, I could tell her anything; so she was right there when I needed her the most. So I told her everything. She was like a second mom” (Hannor-Walker, 2008, p. 104).

During therapy, therapists were watched closely by the adolescents and this played a part in the success or failure of therapy. If they were perceived as just doing their job, the adolescent was less likely to respond favorably as one observed:

My other therapist didn’t really care about me or my mom like going there..... I used to study her like every time. She used to do the same method. Well, she does this, then I’ll do this. I do this, you’ll do that. She does that every time. Then we’d have different things. We’d have different things. She goes with the same method. I’m sitting there thinking, “Man, this is crazy.” Then my mom-she treated my mom like, “Just go home and do this and that.” And I’m like, what? (Lindsey, 2010, p.173)

These perceptions would raise the question of the race of the provider and if it mattered. Adolescents were asked this question and to some it did not seem to matter what the race of the provider was as long as the adolescent felt that they could trust them. One participant put it as:

No. I can’t say it would make a difference at all because it’s about getting help. It’s about having someone that’s there for you to understand what you’re going through and to give you advice, to give you encouragement, to help you sort out things through. So with me, White or Black doesn’t really make a difference. What matters is that we are trustworthy of each other. (Lindsey, 2010, p.171)

On the contrary, some adolescents thought that the race of the provider was important because non-black providers did not understand the context of their life and issues as expressed by this adolescent who said: “[T]hey [African American adolescent boys] didn’t think

that they [white professionals] can understand what they're coming from" (Lindsey et al., 2010, p.54). Another expressed it as:

And I mean it might be one of the...it might be a race issue because some-I think that there are some black people who close themselves off from white people. And you know, in the mental health field, there is a majority of white people, I think. (Lindsey et al., 2010, p.54)

Hearteningly, being able to trust a provider and access appropriate treatment was perceived as a positive experience. Adolescents who participated in school based mental health services felt that their therapists had played a role in improving their academic outcomes and their relationships both at home and school. Outside of school, they felt they were able to avoid negative influences and get along better within the neighborhood (Nabors et al., 1999). One student put this into words as:

Counseling changed my life. When I first started seeing Dr. J. I used to cut school Tuesday through Friday, but I wouldn't cut Monday so I could come to (see) her. And then I would come to school, stay until 1:30 p.m., talk to her, and then leave. Or just not go to school and just talk to her. Now I come. I have been coming a lot now. (Nabors et al., 1999, p.45)

Most participants in other studies also felt that therapy helped and was effective in helping them deal with their issues. One adolescent expressed it as: "To me, to talk to my therapist was like relief to me, because he was the only person that I can be able to tell my thoughts, get my thoughts together why I was there" (Hannor-Walker, 2008, p.82).

## **Discussion**

The 6 research studies included in this metasynthesis provide an insight into the process African American adolescents go through in recognizing, accepting and then seeking help for their mental health issues. Through the themes, the hesitation, reaching out and stigma are illuminated in coming to terms with their condition and then seeking help. Though the themes

are discussed separately, it is imperative to realize that the themes are like a pendulum that swings back and forth against a background of shame and stigma. Depending on what stage the adolescent is at, the support of the inner circle may or may not be sought until after reflection of mental health status within. On the other hand, it may be the inner circle that recognizes the changes in behavior and brings it to the adolescent's attention, thus resulting in self-reflection. Shame and stigma, as a backdrop, play a role in the recognition and acceptance of mental health issues both by the adolescent and the inner circle thus influencing the process of reaching out to the system for help.

Nurses and nurse practitioners have the privilege of working in diverse settings and come into contact with adolescents in various realms such as schools, homes, workplaces, inpatient and outpatient settings. Consequently, they are often the first professionals to recognize the adolescent's need for services and are in a position to provide early intervention strategies in accessing mental health care. With their practice based on holistic care, they can provide counsel and support the adolescent in reaching out to family and the inner circle and facilitate appropriate mental health services. They can also play an instrumental role in the coordination of services and ensure that the needs of the adolescent are met through the entirety of treatment.

In the provision of mental health services, understanding what the adolescent may be experiencing is fundamental in early intervention strategies aimed at engaging adolescents and their families in mental health care. The recognition and validation of the importance of the mother and other close family may be essential to providing adolescents with adequate and appropriate mental health services. The family could be an asset in the treatment process. If the adolescent recognizes that the nurse or nurse practitioner is trusted by his inner circle he may be more likely to continue and complete the therapy. Adolescents are more likely to ask for help in the future if they had a positive experience initially. Having a positive experience may eventually translate into somewhat lessening of the stigma and shame associated with seeking

help. Additionally, nurses and nurse practitioners need to be engaged, flexible and creative in the way treatment and therapy is provided and let the adolescent have some sense of control over the treatment prescribed. Allowing them to develop meaningful relationships with the mental health nurse or nurse practitioner that can be sustained through the treatment process may be what will make a difference in overcoming the disparity in mental health care.

Meeting the needs of the adolescents is a challenge that nurses and nurse practitioners face daily. Identification of adolescents who need mental health services is of prime importance, therefore comprehensive mental health assessments at all contacts with the nurses or nurse practitioners should be encouraged. To better serve them, a deeper understanding of identification of mental health issues through continued education and training should be required of all nurses and nurse practitioners that provide care to these adolescents. Studies have demonstrated that school based health centers are able to reach more African American adolescents than community outpatient clinics (Juszczak, Melinkovich, & Kaplan, 2003). The establishment of school based health centers should therefore be encouraged as a means of increasing access to mental health services by adolescents who may otherwise forgo care. Furthermore, school based health centers can provide collaboration between schools and community organizations to identify and strengthened resources so adolescents have more than one access point into mental health services.

Though this metasynthesis brought to light issues faced by the adolescents, it was a secondary analysis and an interpretation of studies by other researchers. It was limited in that most of the participants were dealing with depression as a mental health condition. There were indications that in some cases psychosocial stressors may have contributed to their mental health issues however they were not the focus of the studies. Limited research in this area was also evident since 3 out of 6 studies used for this synthesis were by the same author and 2 of those studies used the same sample.

Qualitative studies on other areas of mental health are needed to add to the existing knowledge and provide a comprehensive understanding of how and why African American adolescents seek care and what makes them complete treatment. Studies are also needed in varied settings with interventions, thus defining the most appropriate setting for access to care. Broadening the base of knowledge in this area may lead to improved outcomes and play a role in decreasing inequalities within mental health care among this population of adolescents.

This metasynthesis provides an in depth understanding of the experiences of African American adolescents in dealing with mental health issues and mental health services. The discussion of individual themes provides an insight into what the experiences of the adolescents are while linking the themes deepens the understanding of their experiences. The insights provided will allow nurses and nurse practitioners to broaden their comprehension of the mental health issues encountered by these adolescents and hence reach them in delivery of appropriate and adequate care.



## References

- Alexandre, P. K., Younis, M. Z., Martins, S. S., & Richard, P. (2010). Disparities in adequate mental health care for past-year major depressive episodes among white and non-white youth. *Journal of Health Care Finance*, 36(3), 57-72.
- Breland-Noble, A. (2004). Black adolescents. *Psychiatric Annals*, 34(7), 535-538.
- Christenson, S. L. T., Martha L. (2004). School dropouts: Prevention considerations, interventions, and challenges. *Current Directions in Psychological Science (Wiley-Blackwell)*, 13(1), 36-39. doi:10.1111/j.0963-7214.2004.01301010.x
- Committee on Adolescence. (2011). Health care for youth in the juvenile justice system. *Pediatrics*, 128(6), 1219-1235. doi:10.1542/peds.2011-1757
- Hannor-Walker, T. (2008). *Overlooked and underrepresented: A qualitative study of african american adolescents and depression in southwest georgia*. (Unpublished PhD). Capella University, Retrieved from  
url=<http://search.proquest.com.ezproxy.lib.uconn.edu/docview/304816477?accountid=1451>
- Husky, M. M., Kanter, D. A., McGuire, L., & Olsson, M. (2012). Mental health screening of african american adolescents and facilitated access to care. *Community Mental Health Journal*, 48(1), 71-78. doi:10.1007/s10597-011-9413-x
- Juszczak, L., Melinkovich, P., & Kaplan, D. (2003). Use of health and mental health services by adolescents across multiple delivery sites. *Journal of Adolescent Health*, 32(6), 108-118.
- Kleinman, A. (1988). *The illness narratives: Suffering, healing and the human condition*. New

York: Basic Books

Knopf, D., Park, M. J., & Mulye, T. P. (2008). *The mental health of adolescents: A national profile*. University of California, San Francisco: National Adolescent Health Information Center.

Lindsey, M. A., Korr, W. S., Broitman, M., Bone, L., Green, A., & Leaf, P. J. (2006). Help-seeking behaviors and depression among african american adolescent boys. *Social Work*, 51(1), 49-58. doi:10.1093/sw/51.1.49

Lindsey, M. A. (2010). What are depressed african american adolescent males saying about mental health services and providers? In W. E. Johnson Jr., & W. E. Johnson Jr. (Eds.), *Social work with african american males: Health, mental health, and social policy*. (pp. 161-178). New York, NY US: Oxford University Press.

Lindsey, M. A., Joe, S., & Nebbitt, V. (2010). Family matters: The role of mental health stigma and social support on depressive symptoms and subsequent help seeking among african american boys. *Journal of Black Psychology*, 36(4), 458-482.  
doi:10.1177/0095798409355796

Merriam, S. B. (2002). *Qualitative research in practice: Examples for discussion and analysis*. San Francisco: Jossey-Bass.

Miles, M., & Huberman, A. (1994). *Qualitative data analysis: An expanded source book* (2nd ed.). Thousand Oaks, CA: Sage.

Nabors, L. A., Weist, M. D., & Tashman, N. A. (1999). Focus groups: A valuable tool for assessing male and female adolescent perceptions of school-based mental health services. *Journal of Gender, Culture, & Health*, 4(1), 39-48.

- Neinstein, L. S. (2002). *Adolescent health care. A practical guide* (4th edition ed.). Philadelphia, PA 19106: Lippincott Williams & Wilkins.
- Noblit, G. W., & Hare, R. W. (1988). *Meta-ethnography: Synthesizing qualitative studies*. Newbury Park, CA: SAGE Publishers, Inc.
- Rushton, J. L., Forcier, M., & Schectman, R. M. (2002). Epidemiology of depressive symptoms in the national longitudinal study of adolescent health. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41(2), 199-205. doi:10.1097/00004583-200202000-00014
- Sandelowski, M., Docherty, S., & Emden, C. (1997). Focus on qualitative methods. qualitative metasynthesis: Issues and techniques. *Research in Nursing & Health*, 20(4), 365-371.
- Shelton, D. (2004). Experiences of detained young offenders in need of mental health care. *Journal of Nursing Scholarship*, 36(2), 129-133.
- Smith, J. P., & Smith, G. C. (2010). Long-term economic costs of psychological problems during childhood. *Social Science & Medicine* (1982), 71(1), 110-115.  
doi:10.1016/j.socscimed.2010.02.046
- Stagman, S., & Cooper, J. L. (April 2010). *Children's mental health; what every policymaker should know*. (policy brief). Mailman School of Public Health, Columbia University: National Center for Children in Poverty.
- Stewart, D. W., & Shamdasani, P. N. (1990). *Focus groups: Theory and practice*. Newbury Park, CA: Sage.
- Substance Abuse and Mental Health Services Administration (2009). Results from the 2008 national survey on drug use and health: National findings. Rockville, MD: Office of Applied Studies. Retrieved from <http://www.samhsa.gov/data/nsduh/2k8nsduh/2k8Results.htm>

Week, E.(2010). Diplomas Count 2010:Graduation by the numbers:Putting Data to work for student success. Washington, DC:Education Week. Retrieved from [http://www.edweek.org/media/ew/dc/2010/DC10\\_PressKit\\_FINAL.pdf](http://www.edweek.org/media/ew/dc/2010/DC10_PressKit_FINAL.pdf)

Wu, P., Katic, B. J., Liu, X., Fan, B., & Fuller, C. J.(2010). Mental health service use among suicidal adolescents: Findings from a U.S. national community survey. *Psychiatric Services (Washington, D.C.)*, 61(1), 17-24. doi:10.1176/appi.ps.61.1.17

Table 1

*The Seven Steps of Noblit and Hare's (1988) Meta-Ethnographic Approach*

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1. Getting started and deciding on phenomenon to study.  
The experience of African American adolescents in dealing with mental health issues and mental health services was chosen.
  2. Deciding on qualitative studies relevant to the initial interest.  
Various databases searched for relevant articles.
  3. Reading the qualitative studies.  
Selected studies were read and reread to identify metaphors and themes in each study and their relationship to each other.
  4. Determining the relationship of the studies to each other.  
Lists of metaphors in each study and their relationships to each other were made and these were then juxtaposed. The synthesis in this metasynthesis took the form of reciprocal translations because the studies were about analogous themes.
  5. Reciprocal translations.  
Metaphors and themes were compared to those in other studies.
  6. Synthesizing translations.  
Translations of the studies were compared to one another to determine if some of the metaphors, themes or concepts could be incorporated into those of others.
  7. Expressing the synthesis through art, plays, film, written word or music.
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Table 2

*Demographic Characteristics of Participants of the Individual Studies included in the Metasynthesis*

Study	Sample Size	Age Range	Sex	Mental health condition	Setting
Lindsey (2010)	18	14-18 years	M	Depression	Community based mental health centers, private practitioners office
Lindsey et.al., (2006)	18	14-18 years	M	Depression	Community based mental health centers, private practitioners office
Lindsey, Joe and Nebbit (2010)	18	13-18 years	M	Depression	Outpatient community mental health centers, private psychotherapist practice, community based programs
Nabors, Weist and Tashman (1999)	37	14-19 years	M=13; F=17 Caucasian=7	Diagnosis not specified	Inner city high schools
Shelton (2004)	30	13-17 years	M=20; F=10	Varied range of diagnosis	Detention center
Hannor-Walker (2008)	10	13-17 years	M=6; F=4	Depression	High schools in SW Georgia

Table 3

*Methodological Characters of the Qualitative Studies Included in the Metasynthesis*

Author	Discipline	Year	Data Collection	Data Analysis	Qualitative Design
Lindsey	Social work	2010	Interviews	Inductive coding techniques (Miles and Huberman, 1994)	Descriptive qualitative
Lindsey, Joe and Nebbit	Social work	2010	Interviews	Inductive coding techniques (Miles and Huberman, 1994)	Triangulation
Lindsey et al.	Social work	2006	Interviews	Inductive coding techniques (Miles and Huberman, 1994)	Descriptive qualitative
Nabors, Weist and Tashman	Psychology	1999	Focus groups	Coding (Stewart & Shamdasani, 1990)	Descriptive qualitative
Shelton	Nursing	2004	Interviews (Kleinman, 1988)	Open and axial coding	Grounded theory (Strauss & Corbin, 1990)
Hannor-Walker	Social work	2008	interviews	Content analysis model (Patton, 1987)	Descriptive qualitative (Merriam, 2002)

Table 4

*Individual Study Metaphors as Related to the Overarching Themes*

Study	Uncertainty and soul searching	Strength of the inner circle	Shame and reluctance	Belief in the system
Lindsey (2010)	Doubt and hesitation in recognition of mental health issue	Informal networks	Perception of stigma	Misdiagnosis; provider characteristics; expertise, qualifications, trust and style, understands context
Lindsey, Joe and Nebbit (2010)	Initial behavioral responses to depressive symptoms	Family members first to recognize/identify depressive symptoms; help seeking: go to family first		Distrusting of mental health professionals and peer networks
Lindsey et al. (2006)		Influence of social network on experiences of depression. Influence of social network on help seeking and service use		Attitudes towards mental health care and professionals
Nabors, Weist and Tashman (1999)				Positive and negative aspects of treatment; outcomes related to therapy participation
Shelton (2004)	Lack of personal control; feeling depressed and hopeless	Desire for caring and stable families	Better to be tough than sick	Love hate relationship with school
Walker (2008)	Definition of depression; participants' descriptive experiences of contributing factors to depression	African American adolescent problem solving strategies used to cope with depression; types of support African American adolescents received during their experiences with depression		Attitudes, beliefs, and feelings about seeking treatment, its effectiveness, and specific barriers to treatment



### **Chapter 3**

#### **Paper 2**

##### **Abstract**

Mental health issues affect 20-25% of children and adolescents of which few receive services. School-based health centers (SBHC) provide access to mental health services to children and adolescents within their schools. A systematic review of literature was undertaken to review evidence on the provision of mental health services in SBHCs. Databases were searched extensively for research studies published between Jan 1990 and March 2014. Data analysis was based on the method proposed by the Centre for Reviews and Dissemination. Twenty-three studies were selected for review. Each study was explored for accessibility and content of mental health services in SBHCs. SBHCs provide access and eliminate barriers to mental health services. Students who exhibited high risk behaviors were more likely to have sought services at the SBHC. However, there is a lack of high quality research evaluating mental health services in the SBHCs and their effect on children and adolescents.

**Keywords:** school-based health centers, school-based health clinics, mental health services, systematic review, mental health

### Mental Health Services in School-Based Health Centers: A Systematic Review

Recent estimates indicate that mental health issues affect 20-25% of children and adolescents in the United States, and of these only 36% receive mental health services (Merikangas et al., 2011). Of all children and youth with mental health problems, 57% reside in households at or below the federal poverty level (Howell, 2004). Children and youth in low income households and those who are exposed to child welfare and juvenile justice systems are at an increased risk for mental health problems (Stagman & Cooper, April 2010). Living in communities where they are constantly exposed to chronic poverty, residential instability, violence, crime, lack of adequate green space and noise puts these children and adolescents at a greater risk to develop chronic stress (Anakwenze, 2013). Recent studies have demonstrated that adverse childhood experiences result in toxic stress that may affect brain development of children and adolescents, thus making them more vulnerable to mental health conditions (Shonkoff et al., 2012).

Unmet mental health needs are a reflection of the lack of resources available to children and adolescents with mental health issues across the nation (Cummings, Wen, & Druss, 2013). The dearth of mental health resources for children and adolescents is a challenge that is faced by many communities especially those that are in urban and racially segregated areas (Anakwenze, 2013; Dinwiddie et al., 2013). Due to mandates such as the American Disability Act (ADA), schools have historically been the largest providers of mental health care to children and adolescents (Burns et al., 1995; Leaf et al., 1996; Merikangas et al., 2011). The ADA is a civil rights statute that protects persons with disabilities from discrimination and is applicable to all entities in the United States public or private. Under this act public schools are obliged to provide students with disabilities equal opportunities to attain the same achievements as students without disabilities (Americans with disabilities act of 1990, pub. L. no. 101-336, 104 stat. 328 (1990)). Despite federal funding, since the economic downturn in late 2007, many

schools have been faced with significant budget cuts which have affected mental health programs (Oliff et al., 2012).

Untreated mental health conditions are a public health concern since they place undue burdens on the individuals and their families resulting in poor economic and health outcomes. Children and youth with mental health issues are more likely to fail or drop out of school and have a greater involvement in the criminal justice system (Stagman & Cooper, April 2010). More than half of the adolescents who drop out of high school have a diagnosable mental health condition (Christenson, 2004). In 2011, the most costly childhood condition in terms of direct medical expenditures was mental health conditions at \$13.8 billion with a mean average expenditure of \$2465 per child (Soni, April 2014).

The lack of resources for mental health care is of major concern not only for the futures of individual children and adolescents but also for the future prosperity of the communities in which they live. To ensure that all children reach their optimum potential, it is essential to provide them with resources that will enhance their well-being and make them productive members of their communities. Comprehensive health care systems that are easily accessible and can meet the needs of children and youth within their environments are essential. Furthermore, systems that foster partnerships between existing community resources and the schools children and adolescents attend should be strengthened.

School-based health centers (SBHC) provide comprehensive healthcare within schools and can promote partnerships with other community healthcare providers to overcome barriers to mental health care. The majority of SBHCs are located in urban areas and provide comprehensive healthcare to children and adolescents who are underserved. Over 70% of SBHCs provide mental health services and all are required to offer primary medical care (Lofink et al., 2013). Mental health services provided by SBHCs include crisis intervention, comprehensive individual evaluation and treatment, case management, classroom behavior and learning support, substance abuse counselling, assessment and treatment of learning problems,

peer mediation and prescription and management of behavioral health medications (Lofink et al., 2013). Often the school nurse practitioner or the school nurse is the first healthcare provider to come into contact with children and adolescents who may need mental health services. Having a SBHC which provides mental health services would allow for timely referrals and access to the services the children and adolescents may need.

Evidence exists that, when mental health services are available at SBHCs, these services are successful in reaching children and adolescents who may have otherwise forgone care (Amaral et al., 2011; Balassone et al., 1991; Juszczak et al., 2003). A review on the role of SBHCs on sexual, reproductive and mental health services revealed that SBHCs provided quality healthcare to adolescents in high schools (Mason-Jones et al., 2012). To date, a comprehensive review of mental health services in SBHCs that includes elementary, middle and high SBHCs does not exist.

### **Methods**

The purpose of this study was to comprehensively and systematically review the evidence on the provision of mental health services in SBHCs. Factors that influenced access and the use of mental health services in elementary, middle and high schools were reviewed.

### **Data Analysis**

The data collection and analysis for this systematic review was based on the method proposed by the Centre for Reviews and Dissemination (NHS Centre for Reviews and Dissemination, 2009). This method was selected because it is best suited to evaluate health interventions in diverse settings with multiple interventions and outcomes.

### **Sample**

A review of literature was conducted using online databases such as PubMed, CINAHL, PsycInfo, Academic Search Premier, ERIC and Social Work Abstracts. These databases were searched extensively for all research studies published between January 1990 and March 2014. Key search terms used were *school-based health*, *school-based health services*, *school-based*

*health centers, school-based health clinics, mental health and mental health services.* These terms were combined with *adolescent, youth and children.* Inclusion criteria included studies that had any outcomes using quantitative or qualitative methods evaluating mental health services in elementary, middle and high SBHCs. Studies that evaluated school-linked or school-based mental health services were not included. All possible titles and abstracts of papers were reviewed. To avoid bias and maintain objectivity, full text titles were read by two reviewers to ascertain that inclusion criteria were met. Data were extracted from studies that met inclusion criteria and were reviewed independently by both reviewers using a form developed from criteria outlined in the Centre for Reviews and Dissemination guidance (NHS Centre for Reviews and Dissemination, 2009).

### **Data Synthesis**

Due to the diversity of outcome measures and heterogeneity of interventions, a narrative synthesis was deemed to be appropriate. Narrative synthesis is a “textual approach that provides an analysis of the relationships within and between studies and an overall assessment of the robustness of the evidence” (NHS Centre for Reviews and Dissemination, 2009). Once data were extracted from relevant studies, they were brought together, organized and described. This allowed for the exploration of relationships identified by specific studies and reported across multiple studies. Analysis of these relationships led to an overall assessment of the strength of evidence for mental health services in SBHCs.

### **Results**

The search and inclusion of studies are illustrated in Figure 1. A thorough search of all databases identified 982 articles. Of these, 886 were excluded since they did not meet inclusion criteria. Articles were excluded for not being relevant in design, not having mental health outcomes, lack of information on mental health services in SBHCs and if they were reviews. The abstracts of 96 titles were screened and 62 were removed because they were either duplicates or not relevant to the study question. Of the remaining 34 articles, the full texts

of each were read and 11 were excluded because they either had limited or no mental health outcomes. The final selection included 23 studies (Figure 1).

All the studies were conducted in the United States with the exception of one which was carried out in Canada. Of the 23 studies, 6 were surveys and 5 were retrospective analyses (Adelman, Barker, & Nelson, 1993; Amaral et al., 2011; Anglin, Naylor, & Kaplan, 1996; Brindis, Kapphahn, McCarter, & Wolfe, 1995; Hutchinson, Carton, Broussard, Brown, & Chrestman, 2012; Jepson, Juszczak, & Fisher, 1998; Juszczak et al., 2003; Kaplan, Calonge, Guernsey, & Hanrahan, 1998; Kaplan et al., 1999; Pastore, Juszczak, Fisher, & Friedman, 1998; Vaz, Greene, & Griffin, 1993). None of the studies were randomized control trials (RCTs) and two studies were qualitative analyses (Bains, Franzen, & White-Frese', 2014; Gampetro, Wojciechowski, & Amer, 2012). There were four longitudinal studies and four descriptive studies (Balassone et al., 1991; Baquiran, Webber, & Appel, 2002; Guo et al., 2008; Johnson & Hutcherson, 2006; Santor et al., 2006; Wade et al., 2008; Walker, Kerns, Lyon, Bruns, & Cosgrove, 2010; Wolk & Kaplan, 1993). Of the remaining studies, one involved a mixed methods approach and the other was a secondary analysis of self-reported data (Soleimanpour, Geierstanger, Kaller, McCarter, & Brindis, 2010; Szumilas et al., 2010). Most studies were conducted in high school settings but 5 were conducted in either elementary schools or middle schools (Baquiran et al., 2002; Guo et al., 2008; Johnson & Hutcherson, 2006; Kaplan et al., 1999; Wade et al., 2008). All the studies included in this review are summarized and categorized in Table 1.

### **Access to mental health services**

In the studies that reported statistical data, mental health visits accounted for 9-30% of all visits to the SBHCs (Adelman et al., 1993; Amaral et al., 2011; Anglin et al., 1996; Balassone et al., 1991; Guo, Wade, & Keller, 2008; Jepson, Juszczak, & Fisher, 1998; Juszczak, Melinkovich, & Kaplan, 2003; Kaplan, Calonge, Guernsey, & Hanrahan, 1998; Santor, Poulin, LeBlanc, & Kusumakar, 2006; Szumilas, Kutcher, LeBlanc, & Langille, 2010). One study had

higher numbers and reported that almost half of the visits made were for mental health issues (Santor et al., 2006). The findings of individual studies are illustrated in Table 2.

Students who experienced psychological issues were more likely to access mental health services in SBHCs (Adelman, Barker, & Nelson, 1993; Amaral, Geierstanger, Soleimanpour, & Brindis, 2011; Balassone, Bell, & Peterfreund, 1991; Baquiran, Webber, & Appel, 2002; Brindis, Kapphahn, McCarter, & Wolfe, 1995; Hutchinson, Carton, Broussard, Brown, & Chrestman, 2012; Johnson & Hutcherson, 2006; Kaplan et al., 1998; Santor et al., 2006; Szumilas et al., 2010; Wolk & Kaplan, 1993). This was demonstrated in both the high school and elementary/middle school population. In high school, students who reported having psychosocial issues or high risk behaviors such as cigarette smoking and marijuana use had more mental health visits than those who did not (Adelman et al., 1993; Amaral, Geierstanger, Soleimanpour, & Brindis, 2011; Kaplan et al., 1998). In two studies, the majority of the visits made by adolescents who used SBHC services frequently were for mental health reasons (Juszczak, Melinkovich, & Kaplan, 2003; Wolk & Kaplan, 1993). Those with suicidal ideations were more likely to have sought services at the SBHCs (Soleimanpour et al., 2010; Vaz et al., 1993)

Adolescents who had access to SBHCs were 3-10 times more likely to make mental health or substance abuse visits at the SBHC than those that had no access (Kaplan, Calonge, Guernsey, & Hanrahan, 1998; Jepson, Juszczak, & Fisher, 1998; Santor et al., 2006). Adolescents who used the SBHC for mental health services were also more likely to report that they knew where to go for help and were more likely to receive the help they sought (Amaral et al., 2011; Balassone et al., 1991; Gampetro, Wojciechowski, & Amer, 2012). This was demonstrated in a retrospective analysis in a SBHC in a high school whereby the number of mental health visits quadrupled and the percent of visits devoted to mental health doubled (Jepson, Juszczak, & Fisher, 1998).

Similarly, in the elementary schools, more students accessed the SBHC for mental health issues than for medical issues (Johnson & Hutcherson, 2006). In longitudinal studies in elementary/middle SBHCs, the usage of mental health services increased more than medical services over the years (Guo et al., 2008; Wade et al., 2008). Additionally, as evidenced among adolescents, when students in elementary and middle schools had access to mental health services they were more likely to use the services (Kaplan et al., 1999).

It was not only the quantity of mental health visits that mattered but also the time devoted to each visit. Mental health visits lasted an average of 47 minutes in one high SBHC (Anglin, Naylor, & Kaplan, 1996a). Those who sought mental health services were more likely to have received mental health services and had an average of 4-10 visits each for their issues (Amaral et al., 2011; Anglin et al., 1996; Baquiran et al., 2002; Hutchinson et al., 2012; Jepson et al., 1998; Johnson & Hutcherson, 2006). When adolescents had access to both the SBHC and community health centers they were 21 times more likely to seek mental health services in the SBHC and more likely to access mental health services before medical services (Juszczak et al., 2003). Mental health visits were made by fewer students but accounted for a large portion of the visits (Baquiran et al., 2002; Adelman et al., 1993). SBHCs were able to reach adolescents who exhibited high risk behaviors (Hutchinson et al., 2012; Jepson, Juszczak, & Fisher, 1998).

In both high schools and elementary/middle schools, students insured through government programs or with no insurance comprised a higher portion of users of mental health services in SBHCs (Amaral et al., 2011; Baquiran et al., 2002; Brindis, Kapphahn, McCarter, & Wolfe, 1995; Johnson & Hutcherson, 2006; Juszczak et al., 2003; Wade et al., 2008). In several studies female adolescents used the clinic for mental health services more often than male adolescents (Anglin et al., 1996; Brindis et al., 1995; Hutchinson et al., 2012; Jepson et al., 1998; Johnson & Hutcherson, 2006; Juszczak et al., 2003; Pastore & Techow, 2004; Szumilas et al., 2010; Wolk & Kaplan, 1993). However, in the study by Wade et al. (2008), boys had a



higher percentage of mental health visits in rural SBHCs than girls. In another study, adolescent males were 45 times more likely to seek mental health services at the SBHCs than in community health centers (Juszczak et al., 2003). Though utilization relative to racial and ethnic identities was not specifically addressed, Hispanic adolescents sought mental health services more often in two of the studies (Juszczak et al., 2003; Vaz et al., 1993).

The availability of mental health services varied across the reviewed studies with some reporting the availability of full time mental health providers (Anglin et al., 1996; Baquiran et al., 2002; Jepson et al., 1998; Johnson & Hutcherson, 2006; Juszczak et al., 2003; Kaplan et al., 1998; Kaplan et al., 1999; Wolk & Kaplan, 1993). Others reported part-time availability of mental health services (Amaral et al., 2011; Brindis et al., 1995; Guo et al., 2008; Pastore et al., 1998; Santor et al., 2006; Soleimanpour et al., 2010; Vaz et al., 1993; Wade et al., 2008). A few studies were not explicit on the availability of mental health services (Adelman et al., 1993; Bains et al., 2014; Balassone et al., 1991; Gampetro et al., 2012; Hutchinson et al., 2012; Walker et al., 2010).

Providers of mental health services also varied with three studies reporting nurse practitioners as mental health providers (Baquiran et al., 2002; Santor et al., 2006; Szumilas et al., 2010). Five studies reported that social workers provided mental health services (Brindis et al., 1995; Gampetro et al., 2012; Jepson et al., 1998; Kaplan et al., 1998; Wade et al., 2008). Others listed licensed mental health counselors as mental health providers (Amaral et al., 2011; Anglin et al., 1996; Guo et al., 2008; Hutchinson et al., 2012; Johnson & Hutcherson, 2006; Juszczak et al., 2003; Kaplan et al., 1999; Soleimanpour et al., 2010; Vaz et al., 1993; Walker et al., 2010; Wolk & Kaplan, 1993). One study reported that mental health services were provided by psychologists (Pastore et al., 1998).

### **Content of Mental Health Visits**

Mental health visits to the SBHCs were most often related to pregnancy, sexuality, depression, suicide ideation, conflict and violence (Jepson et al., 1998; Pastore et al., 1998;

Szumilas et al., 2010; Vaz, Greene, & Griffin, 1993). Among adolescents, those who had participated in high risk behaviors such as substance abuse or use of alcohol were also more likely to use mental health services at SBHCs (Amaral et al., 2011; Anglin et al., 1996; Balassone et al., 1991; Kaplan et al., 1998; Szumilas et al., 2010). In the study by Szumilas et al. (2010), depression was the most common reason for seeking mental health care. Suicidal ideation resulted in students being more likely to seek services at the SBHC and comprised 80% of the students seen for mental health visits at one high SBHC (Soleimanpour et al., 2010; Vaz et al., 1993). In other high schools, adolescents who reported suicidal ideation sought mental health services more often and were more likely to have seen a therapist (Amaral et al., 2011; Hutchinson, Carton, Broussard, Brown, & Chrestman, 2012). Students who used the SBHCs for mental health services also reported lower levels of academic performances (Amaral et al., 2011; Szumilas et al., 2010; Walker, Kerns, Lyon, Bruns, & Cosgrove, 2010). However, in a longitudinal study Walker et al. (2010) reported that while mental health users had lower GPAs (grade point averages) than nonusers, they had a steeper increase in GPAs over five semesters compared to nonusers.

The two qualitative studies that were included in this review highlighted family problems, unresolved anger, suicide ideation and negative peer pressure as reasons adolescents sought mental health services in SBHCs (Bains, Franzen, & White-Frese', 2014; Gampetro, Wojciechowski, & Amer, 2012). These reasons were similar to findings of focus groups conducted with adolescents to assess reasons for seeking mental health care in SBHCs (Adelman et al., 1993; Soleimanpour et al., 2010). Adolescents also reported that they would not have sought care had mental health services not been available in SBHCs (Bains et al., 2014; Gampetro et al., 2012). These findings were quantified in the study by Juszczak et al. mentioned earlier, whereby adolescents were 21 times more likely to seek mental health services in SBHCs than community based clinics (2003). The adolescents who used the SBHCs for mental health services voiced that they valued the services because they could

access services easily, trusted the providers, found the providers to be helpful and considered the services to be confidential (Adelman et al., 1993; Amaral et al., 2011a; Bains et al., 2014; Balassone et al., 1991; Gampetro et al., 2012; Pastore et al., 1998).

## **Discussion**

This review examined 23 research studies on the provision of mental health services in SBHCs in elementary, middle and high schools and evaluated their findings. In the studies reviewed, mental health visits in SBHCs comprised up to 30% of total visits to SBHCs. These results are encouraging considering the number of children and adolescents with mental health issues and the few that receive services nationally. The review also revealed that SBHCs provided much needed access to students with mental health issues and that such students were more likely to access services at the SBHCs. Long term presence of SBHCs also increased access over the years indicating that with time more students sought mental health services in SBHCs. Moreover, the average number and duration of visits for mental health care in the SBHCs were an encouraging indicator of patient access to mental health care, especially since it has been noted that adolescents often do not follow through with outpatient mental health services (Cuffe, Waller, Cuccaro, & Pumariega, 1995; Barksdale, Azur, & Leaf, 2010). Students who exhibited high risk behaviors or had more complex mental health difficulties such as suicide, depression and difficulty with sleep were more likely to have sought services at the SBHCs as were students with either public or no health insurance. Though the review of studies indicated that more females sought mental health services, there was evidence that SBHCs were successful in reaching males as well. Several studies provided evidence that mental health users had lower academic grades indicating that SBHCs provided services to students with a multitude of issues that may have hampered their academic performance.

This review was limited by the research designs in the studies available and brought to light the paucity of robust studies testing the efficacy or effectiveness of mental health services within SBHCs. Most of the studies reviewed were descriptive and consisted of either self-

reported surveys or retrospective medical record reviews. The studies were also skewed towards the adolescent age group with few studies conducted in the elementary and middle school ages. This was especially evident among the studies that were reviewed for the content of mental health visits. Since none of the studies was experimental in design, the results of comparisons between schools with SBHCs and those without could reflect confounding by differences in other characteristics. Data that were collected and analyzed were mostly from students or parents of students who used the SBHCs and may not be representative of more general student or parent populations. The availability of mental health services was not consistent across the research sites with some sites having full time mental health providers while others had limited availability. This made it impossible to evaluate the services across the settings. Responsibilities for mental health services were also inconsistent and varied from medical providers to social workers or psychologists. Nevertheless, there was evidence that mental health services in SBHCs were successful in reaching students who were in most need of services.

Medical and mental health care providers in SBHCs provide services to underserved children and adolescents and this review indicates that there is evidence that those who are in most need of mental health services were most likely to use these services. Over 55% of SBHCs are located in urban low income areas where the potential for exposure to childhood toxic stress is high (Anakwenze, 2013; Lofink et al., 2013). The availability of mental health services in SBHCs may help children and adolescents to buffer some of the repercussions of this stress experienced in their daily lives.

Nurses and nurse practitioners in SBHCs often have partnerships and liaisons with community providers that may provide additional resources to users of SBHC mental health services and their families (Keeton, Soleimanpour, & Brindis, 2012). Planning, implementation and integration of such services in collaboration with the students, parents, guardians, school staff and community providers is essential for supporting the needs of children and adolescents

in school and within their communities. To attain a strong and sustainable support network for these services, there is a need for a strong evidence base with robust and high quality research to show evidence of the effectiveness of mental health services in SBHCs. Nurse practitioners and nurses in SBHCs can play an essential role in furthering research in this area by forming partnerships with research institutions and providing their expertise in designing and conducting studies that provide such evidence. They are also in a unique position to be able to implement their findings.

To provide adequate mental health services to children and adolescents, a multipronged approach may be needed. As the findings from the review reveal, SBHCs provide access to mental health services to those children and adolescents who need it the most within their environments. Support for such resources maybe one of several approaches to providing children and adolescents with the foundation they may need to achieve their full potential to be productive members of their communities.

## References

- Adelman, H. S., Barker, L. A., & Nelson, P. (1993). A study of a school-based clinic: Who uses it and who doesn't? *Journal of Clinical Child Psychology*, 22(1), 52-59.  
doi:10.1207/s15374424jccp2201\_5
- Amaral, G., Geierstanger, S., Soleimanpour, S., & Brindis, C. (2011). Mental health characteristics and health-seeking behaviors of adolescent school-based health center users and nonusers. *The Journal of School Health*, 81(3), 138-145. doi:10.1111/j.1746-1561.2010.00572.x; 10.1111/j.1746-1561.2010.00572.x
- Americans with disabilities act of 1990, pub. L. no. 101-336, 104 stat. 328 (1990).
- Anakwenze, U., Daniyal. (2013). Mental health and poverty in the inner city. *Health & Social Work*, 38(3), 147-157. doi:10.1093/hsw/hlt013
- Anglin, T. M., Naylor, K. E., & Kaplan, D. W. (1996). Comprehensive school-based health care: High school students' use of medical, mental health, and substance abuse services. *Pediatrics*, 97(3), 318-330.
- Bains, R. M., Franzen, C. W., & White-Frese', J. (2014). Engaging african american and latino adolescent males through school-based health centers. *Journal of School Nursing (Sage Publications Inc.)*, 30(6), 411-419. doi:10.1177/1059840514521241
- Balassone, M. L., Bell, M., & Peterfreund, N. (1991). A comparison of users and nonusers of a school-based health and mental health clinic. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, 12(3), 240-246.

- Baquiran, R. S., Webber, M. P., & Appel, D. K. (2002). Comparing frequent and average users of elementary school-based health centers in the bronx, new york city. *Journal of School Health, 72*(4), 133-137.
- Brindis, C., Kapphahn, C., McCarter, V., & Wolfe, A. L. (1995). The impact of health insurance status on adolescents' utilization of school-based clinic services: Implications for health care reform. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine, 16*(1), 18-25. doi:10.1016/1054-139X(95)94069-K
- Burns, B. J., Costello, E. J., Angold, A., Tweed, D., Stangl, D., Farmer, E. M., & Erkanli, A. (1995). Children's mental health service use across service sectors. *Health Affairs (Project Hope), 14*(3), 147-159.
- Christenson, S. L. T., Martha L. (2004). School dropouts: Prevention considerations, interventions, and challenges. *Current Directions in Psychological Science (Wiley-Blackwell), 13*(1), 36-39. doi:10.1111/j.0963-7214.2004.01301010.x
- Cummings, J. R., Wen, H., & Druss, B. G. (2013). Improving access to mental health services for youth in the united states. *JAMA : The Journal of the American Medical Association, 309*(6), 553-554. doi:10.1001/jama.2013.437 [doi]
- Dinwiddie, G. Y., Gaskin, D. J., Chan, K. S., Norrington, J., & McCleary, R. (2013). Residential segregation, geographic proximity and type of services used: Evidence for racial/ethnic disparities in mental health. *Social Science & Medicine (1982), 80*, 67-75. doi:10.1016/j.socscimed.2012.11.024 [doi]

- Gampetro, P., Wojciechowski, E. A., & Amer, K. S. (2012). Life concerns and perceptions of care in adolescents with mental health care needs: A qualitative study in a school-based health clinic. *Pediatric Nursing, 38*(1), 23-30.
- Guo, J. J., Wade, T. J., & Keller, K. N. (2008). Impact of school-based health centers on students with mental health problems. *Public Health Reports, 123*(6), 768-780.
- Howell, E. (2004). *Access to children's mental health services under medicaid and SCHIP*. Washington D.C.: Urban Institute.
- Hutchinson, P., Carton, T. W., Broussard, M., Brown, L., & Chrestman, S. (2012). Improving adolescent health through school-based health centers in post-katrina new orleans. *Children and Youth Services Review, 34*(2), 360-368. doi:10.1016/j.childyouth.2011.11.005
- Jepson, L., Juszczak, L., & Fisher, M. (1998). Mental health care in a high school based health service. *Adolescence, 33*(129), 1-1.
- Johnson, V., & Hutcherson, V. (2006). A study of the utilization patterns of an elementary school-based health clinic over a 5-year period. *Journal of School Health, 76*(7), 373-378.
- Juszczak, L., Melinkovich, P., & Kaplan, D. (2003). Use of health and mental health services by adolescents across multiple delivery sites. *Journal of Adolescent Health, 32*(6), 108-118. doi:http://dx.doi.org/10.1016/S1054-139X(03)00073-9
- Kaplan, D. W., Brindis, C. D., Phibbs, S. L., Melinkovich, P., Naylor, K., & Ahlstrand, K. (1999). A comparison study of an elementary school-based health center: Effects on health care access and use. *Archives of Pediatrics & Adolescent Medicine, 153*(3), 235-243.



- Kaplan, D. W., Calonge, B. N., Guernsey, B. P., & Hanrahan, M. B. (1998). Managed care and school-based health centers. use of health services. *Archives of Pediatrics & Adolescent Medicine*, 152(1), 25-33.
- Keeton, V., Soleimanpour, S., & Brindis, C. D. (2012). School-based health centers in an era of health care reform: Building on history. *Current Problems in Pediatric and Adolescent Health Care*, 42(6), 132-56; discussion 157-8. doi:10.1016/j.cppeds.2012.03.002
- Leaf, P. J., Alegria, M., Cohen, P., Goodman, S. H., Horwitz, S. M., Hoven, C. W., . . . Regier, D. A. (1996). Mental health service use in the community and schools: Results from the four-community MECA study. methods for the epidemiology of child and adolescent mental disorders study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35(7), 889-897.
- Lofink, H., Kuebler, J., Juszczak, L., Schlitt, J., Even, M., Rosenberg, J., & White, I. (2013). *2010-2011 school-based health alliance census report*. (). Washington, D.C.: School-Based Health Alliance.
- Mason-Jones, A. J., Crisp, C., Momberg, M., Koech, J., De Koker, P., & Mathews, C. (2012). A systematic review of the role of school-based healthcare in adolescent sexual, reproductive, and mental health. *Systematic Reviews*, 1, 49-4053-1-49. doi:10.1186/2046-4053-1-49;
- Merikangas, K. R., He, J. P., Burstein, M., Swendsen, J., Avenevoli, S., Case, B., . . . Olfson, M. (2011). Service utilization for lifetime mental disorders in U.S. adolescents: Results of the national comorbidity survey-adolescent supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, 50(1), 32-45. doi:10.1016/j.jaac.2010.10.006; 10.1016/j.jaac.2010.10.006

- NHS Centre for Reviews and Dissemination. (2009). *Systematic reviews CRD's guidance for undertaking reviews in health care* (3rd ed.). Layerthorpe, York: Centre for Reviews and Dissemination, University of York.
- Oliff, P., Mai, C., & Leachman, M. (2012). *New school year brings more cuts in state funding for schools*. Washington D.C: Center on Budget and Policy Priorities.
- Pastore, D. R., Juszczak, L., Fisher, M. M., & Friedman, S. B. (1998). School-based health center utilization: A survey of users and nonusers. *Archives of Pediatrics & Adolescent Medicine*, 152(8), 763-767.
- Pastore, D. R., & Techow, B. (2004). Adolescent school-based health care: A description of two sites in their 20th year of service. *The Mount Sinai Journal of Medicine, New York*, 71(3), 191-196.
- Santor, D. A., Poulin, C., LeBlanc, J. C., & Kusumakar, V. (2006). Examining school health center utilization as a function of mood disturbance and mental health difficulties. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, 39(5), 729-735. doi:10.1016/j.jadohealth.2006.04.010
- Shonkoff, J. P., Garner, A. S., Committee on Psychosocial Aspects of Child and Family Health, Committee on Early Childhood, Adoption, and Dependent Care, & Section on Developmental and Behavioral Pediatrics. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129(1), e232-46. doi:10.1542/peds.2011-2663; 10.1542/peds.2011-2663

- Soleimanpour, S., Geierstanger, S., Kaller, S., McCarter, V., & Brindis, C. (2010). The role of school health centers in health care access and client outcomes. *American Journal of Public Health, 100*(9), 1597-1603. doi:10.2105/AJPH.2009.186833
- Soni, A. (April 2014). *The five most costly children's conditions, 2011: Estimates for U.S. civilian noninstitutionalized children, ages 0–17.* ( No. Statistical Brief #434). Rockville, MD.: Agency for Healthcare Research and Quality,.
- Stagman, S., & Cooper, J. L. (April 2010). *Children's mental health; what every policymaker should know.* (policy brief). Mailman School of Public Health, Columbia University: National Center for Children in Poverty.
- Szumilas, M., Kutcher, S., LeBlanc, J. C., & Langille, D. B. (2010). Use of school-based health centres for mental health support in cape breton, nova scotia. *Canadian Journal of Psychiatry, 55*(5), 319-328.
- Vaz, R. M., Greene, A., & Griffin, J. (1993). School-based health care: An inner-city experience. *Rhode Island Medicine, 76*(4), 185-189.
- Wade, T. J., Mansour, M. E., Guo, J. J., Huentelman, T., Line, K., & Keller, K. N. (2008). Access and utilization patterns of school-based health centers at urban and rural elementary and middle schools. *Public Health Reports (Washington, D.C.: 1974), 123*(6), 739-750.
- Walker, S. C., Kerns, S. E., Lyon, A. R., Bruns, E. J., & Cosgrove, T. J. (2010). Impact of school-based health center use on academic outcomes. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine, 46*(3), 251-257.  
doi:10.1016/j.jadohealth.2009.07.002

Wolk, L. I., & Kaplan, D. W. (1993). Frequent school-based clinic utilization: A comparative profile of problems and service needs. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, 14(6), 458-463.

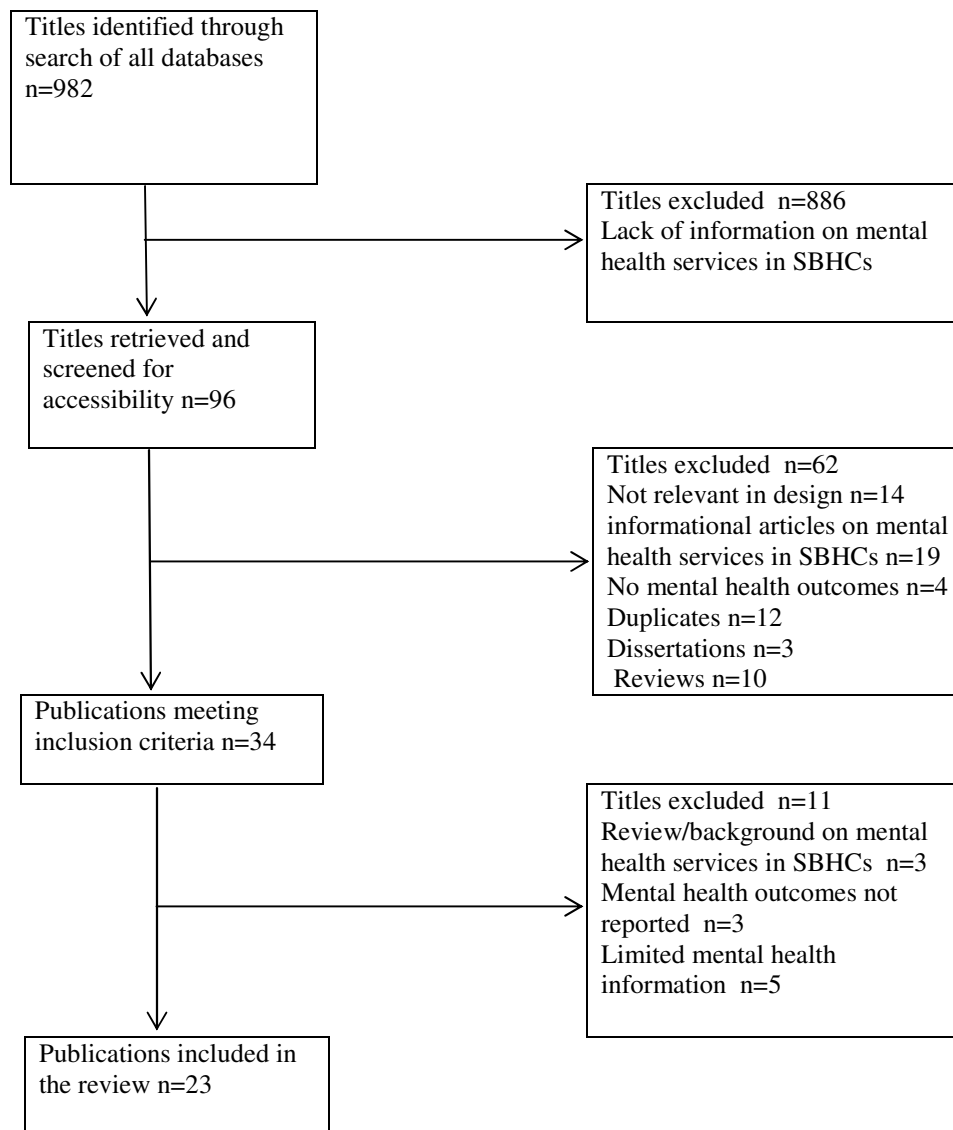


Figure 1. Study selection diagram

Table 1:

*A Summary of Studies Included in the Review*

Access and utilization of mental health services		
Author and year; study design	Participants and sample	Findings on access and utilization
Baquiran, Webber, Appel (2002) Descriptive	Ages:5y-13y 2795 students in 3 elementary schools in Bronx, New York	Frequent visits were more likely to have been made by older children (8-13y) and they were more likely to have been seen for mental health issues. Students who experienced mental health issues were more likely to access mental health services. Mental health users had an average of 6-10 visits each. Though a small number of students accessed mental health services, mental health visits accounted for a large proportion of all visits. Majority of the clinic users were either on public insurance or had no insurance.
Brindis, Kapphahn, McCarter, Wolfe (1995) Survey	Ages:14-18y 2860 students in 3 urban high schools in California	A significant number of students on Medicaid used mental health services in the SBHCs. Students with emotional issues were more likely to seek mental health services and females used these services more than males.
Guo, Wade, Keller (2008) Longitudinal quasi experimental repeated measures time-series	Ages: 10.5 y (mean) 109 students in 7 elementary schools in Ohio	Encounters for mental health problems ranged from 4-19%. Utilization of mental health services went up 5.6% for the 2 urban schools and 5.9% for the one rural school.
Johnson, Hutcherson (2006) Descriptive	Ages:2weeks-16 years 783 students (average over 5 years) in 1 elementary school in Georgia	Use of mental health services was higher than use of medical services. Students who sought mental health services were more likely to have received services. Those with public insurance or no insurance made up majority of clinic users.
Juszczak, Melinkovich, Kaplan (2003) Retrospective cohort design	Age: 16.7 years (mean) 451 students in 3 high schools	Majority of the visits (65.7%) made by frequent users were for mental health reasons (64.7%). Females were more frequent users of mental health services. More than one third of the visits were for mental health visits. Hispanic students sought mental health care most often in SBHCs (36%). Mental health was the most likely reason for seeking care for students with public insurance or no insurance and accounted for 45% and 30% of all visits respectively. Males were 45 times more likely to seek services in the SBHC than community clinics. Adolescents were 21 times more likely to access mental health services at the SBHC than community clinics and use mental health services first and medical services second.

(continued)

Table 1: *A Summary of Studies Included in the Review* (continued)

Access and utilization of mental health services		
Author and year; study design	Participants and sample	Findings on access and utilization
Santor, D.A.; Poulin, C.; LeBlanc, J.L.; Kusumaker, V (2006) Longitudinal design	Age: 14-15 years (average) 1644 students. 1 senior and 3 junior high schools in Canada	Between 17-23% of students made at least one visit to the SBHCs. More females than males visited the SBHCs. Students with serious problems or those who wanted help for an emotional problem were 2.91 times and 3.55 times more likely to visit SBHCs than those who did not. Students who had a high level of mood disturbance and emotional problems which lasted a month were 2.71 times and 2.33 times more likely to visit the SBHC. Students who were categorized as being mood disturbed had a larger mean number of visits. These students comprised 25% of the school population but accounted for 46% of the visits.
Wolk, Kaplan (1993) Descriptive	Age: 16.9 years (average) 156 students 3 high schools in Colorado	Frequent users were diagnosed with mental health issues more often than average users (23.3% vs 3.7%). Almost 90% of frequent users used the SBHC for mental health counselling, or substance abuse as opposed to less than 20% of average users. Females were more frequent users and had lower GPAs.
Wade, Mansour, Guo, Huentelman, Line, Keller (2008) Descriptive	Age: 5-15y 4426 students 8 school districts in Ohio and Kentucky	Boys had a higher number of visits for mental health problems than girls. Students with public insurance had a higher number of visits for mental health issues. The number of mental health visits saw the largest increase from less than 1% to almost 22%.
Kaplan, Brindis, Phibbs, McInkovich, Naylor, Ahlstrand (1999) Retrospective cohort analysis of parent surveys	Age: 4-13y 1010 surveys returned	Those with mental health issues had a higher number of mental health visits than those who did not with an average of 5.4 visits per year. Access to SBHC was independently associated with a trend towards an increased use of mental health services. It was associated with 1.4 times greater likelihood of having obtained both routine dental exams and mental health services in the past year.
Access and utilization of SBHCs and content of mental health visits		
Author and year; study design	Participants and sample	Findings on access and utilization and content of mental health visits
Adelman, Barker, Nelson (1993) Self-report survey	Age: 16-20y 471 students in a California High School	Of all users, 28% of students used SBHC for mental health and psychosocial problems and of these 90% were satisfied with the services. Accessibility; helpfulness; trust and confidentiality of staff were reasons cited for using clinic. Those who reported higher scores on psychological and psychosocial problems were frequent users of mental health services in the SBHC.
Amaral, Geierstanger, Soleimanpour, Brindis (2011) Survey	Age: 9 <sup>th</sup> and 11 <sup>th</sup> grade 4640 students in 4 high schools in California	Students who reported psychological issues or high risk behaviors had more mental health visits. Students who reported the most frequent feelings of nervousness or stress or depression or sadness and trouble sleeping and suicide ideation were more likely to seek services. Those who used the SBHCs were more likely than non-users to have experienced difficult life events. Students who had considered suicide in the past year were 52% more likely to have sought SBHC services and 112% more likely to have used SBHC mental health services. Those who had public health insurance were more likely to use mental health services. More females than males used mental health services in the SBHC. Students who used the SBHC were 74% more likely to have gotten the mental health services they needed than non-users.

(continued)

Table 1: *A Summary of Studies Included in the Review* (continued)

Access and utilization of SBHCs and content of mental health visits		
Author and year; study design	Participants and sample	Findings on access and utilization and content of mental health visits
Anglin, Naylor, Kaplan (1996) retrospective analysis	Age: ≤ 14-≥ 18 years 6080 students in 3 SBHCs in Colorado	63% of students used the SBHC with 25% of visits being for mental health issues. The mean duration of mental health visits was 47 minutes and mean number of visits per students was 5.8. Those who participated in high risk behaviors were more likely to use mental health services. More females than males accessed mental health services
Balassone, Bell, Peterfreund (1991) Longitudinal evaluation	Ages: 14-18 years 614 students in a high school in Washington	Clinic users were more likely than non-users to have experienced a higher number of stressors and engaged in high risk behavior. They were also consistently more likely to report they knew of a place to get help and receive the needed care when they experienced a health or mental health issue. 20% of users reported a mental health issue. They reported that services were easily accessible and helpful.
Gampetro, Wojciechowski, Amer (2012) Qualitative exploratory design	Age: 12y-18y 18 students in a high school in Chicago	Adolescent concerns included mental health care needs; relationships with family; academics and long term goals such as ability to earn a living and college; being able to maintain health and achieve financial independence. Mental health services were perceived as reliable, supportive and confidential. Had they not had access to mental health services in SBHCs, they would not have sought care.
Hutchinson, Carton, Broussard, Brown, Chrestman (2012) Quasi-experimental design	Age: 14-18 y 1837 students in 6 high schools in New Orleans	Students with access to SBHC were more likely to have used the mental health services than those without access even though the needs of both groups were comparable. SBHC users were more likely to have met with a therapist in the last 12 months (29.8% vs 23%). The strongest effect was on the use of counselling where students were 22% points more likely to have ever talked with a behavioral health counselor. Females were 23.8% more likely to have received behavioral health services at school. SBHCs were able to reach high risk students facing numerous and unparalleled challenges.
Jepson, Juszczak, Fisher (1998) Retrospective chart review	Age: 16y-18y 2000 students in a high school in Queens, New York	Mental health issues represented 17% of all clinic diagnosis. Students who had access to mental health services were 3-10 times more likely to make a visit and had an average of 4 visits per year. Majority of visits were made by female students (79%). Over a 5 year period, the number of MH visits quadrupled, while the percent of visits devoted to MH issues doubled. The SBHC was able to provide services to students engaged in high risk behaviors especially those related to sexuality.
Kaplan, Calonge, Guernsey, Hanrahan (1998) Retrospective cohort designed	Age: 13y-17y 342 students in 3 schools in Denver	Over 95% of mental health visits and all the substance abuse visits occurred in the group with access to the SBHC. Adolescents with access to a SBHC were 10 times more likely to make a mental health or subs abuse visit than those without. Females had more visits than males.

(continued)



Table 1: : A Summary of Studies Included in the Review (continued)

Author and year; study design	Participants and sample	Findings on access and utilization and content of mental health visits
Pastore, Juszczak, Fisher (1998) Surveys	Age: 16 y (mean) 630 students in one high school in New York	Females were frequent users (68%). Mental health problems among the student population included depression (31%), daily alcohol use (5%), suicide ideation (16%), history of suicide attempt (10%), knowing someone who had been murdered (50%), involvement in at least 1 school fight (26%). There were no differences in rates of depression, suicide ideation and attempt, alcohol involvement or exposure to violence among frequent users, average users and nonusers. Almost all SBHC users (92%) reported they were satisfied with the services and most were comfortable going to the SBHC for their care. About 75% believed their visits were kept confidential; 29% reported they found the psychological services at the SBHC to be useful; females were more likely than males to believe that visits were kept confidential (79%).
Szumilas, Kutcher, Leblanc, Langille (2010) Secondary analysis on self-reported data	Age: 16.7 y (mean) 1629 students in 3 HS in Cape Breton, Nova Scotia	Those with emotional problems were more likely to use mental health services in SBHCs and about half reported needs for mental health support (49.3%). The most commonly reported indicator of need for mental health support was risk for depression. More females than males used mental health services in the SBHCs. Users of the SBHCs reported lower school performance, sexual health risk-taking behaviors, suicidal behavior and risk for depression.
Content of mental health visits		
Author and year; study design	Participants and sample	Findings on content of mental health visits
Vaz, Greene, Griffin (1993) Surveys over 2 days	Age: 16.1 y (mean) 298 students in one high school in Rhode Island	Majority of the users of the SBHC were female (70.7%). Hispanic students were the majority users (87.9%). Each student had about 4 visits per year. Most students (80%) were seen for suicide ideations and adolescent issues (60%). In a school with a 32% drop out rate, 15% were seen for counselling related to dropout prevention.
Walker, Kerns, Lyon, Bruns, Cosgrove (2010) Quasi-experimental longitudinal design	Age: 14-15 y 2306 9 <sup>th</sup> grade students in one of 13 high schools in Seattle.	Most common reasons for a visit to the SBHC were for academic difficulties, family problems, depressive disorders and deferred diagnosis. GPAs of mental health users were significantly lower than nonusers but had a steeper increase in GPA over the 5 semesters they sought mental health services in SBHCs.
Bains, Franzen, White-Frese (2014) Qualitative content analysis	Age: 13-18 y 22 male students in 3 middle schools and 4 high schools	Unresolved anger, family relationships, risky behavior, suicide ideation, negative peer pressure, and depression were issues that led these males to seek mental health services. Access to SBHCs allowed them to address their issues in a safe environment, thus avoiding disruption to their school day.
Soleimanpour, Geierstanger, Kaller, Mccarter, Brindis (2010) Mixed methods	Age: 7410 students in 12 high schools in California	Mental health comprised of 27% of all visits. Most common reasons for referrals to mental health services for new or returning clients were for academic issues, family conflicts, depression, suicide ideation or attempt, peer relationships, anxiety or adjustment, anger management. Majority of users were female. The SBHCs were the most usual source of mental health care. The users valued confidentiality, privacy, convenience and the free services. They liked the staff and valued the trust. These findings were similar to those in the focus groups that included a higher number of males as participants.

Table 2

*Frequencies of Mental Health Visits reported in individual studies*

Authors and year	Percentage of mental health visits and number of participants	
Adelman, Barker, Nelson (1993)	28%	(471 participants)
Amaral, Geierstanger, Soleimanpour, Brindis (2011)	15%	(5451 participants)
Anglin, Naylor, Kaplan (1996)	25%	(3818 participants)
Balassone, Bell, Peterfreund (1991)	20%	(302 participants)
Guo, Wade, Keller (2008)	4-19%	(109 participants)
Jepson, Juszczak, Fisher (1998)	17%	(265 participants)
Juszczak, Melinkovich, Kaplan (2003)	34%	(451 participants)
Kaplan, Calonge, Guernsey, Hanrahan (1998)	31%	(342 participants)
Santor, D.A.; Poulin, C.; LeBlanc, J.L.; Kusumaker, V (2006)	46%	(261 participants)
Szumilas, Kutcher, Leblanc, Langille (2010)	25.8%	(1629 participants)

## **Chapter 4**

### **Paper 3**

#### **Abstract**

**BACKGROUND:** This study summarizes utilization patterns for mental health (MH) services in school-based health centers (SBHC) funded by the Connecticut Department of Public Health in New Haven, CT.

**METHODS:** SBHC visits occurring in elementary, middle and high schools during 2007-09 were examined. Frequencies of MH visits were tallied by age and then were cross-tabulated relative to gender, race/ethnicity and insurance status. Statistical testing for non-random variation in the frequency of MH visits across ages and for interactions between age and other demographic variables was conducted using logistic regression.

**RESULTS:** MH visits (6,163) accounted for the highest proportion of visits (31.8%) among all diagnostic groups (19,281). Relative to age, the proportion of MH visits peaked, initially, at 8 years (42.8%) and, again, at 13 years (39.0%). More frequent MH visits by boys accounted for the peak at age 8 (52.7% of all visits), while those by both boys (38.5%) and girls (39.4%) jointly accounted for the peak at age 13. The proportion of MH visits made by males (53.1%) was higher than by females (46.8%). Lower proportions of MH visits by Hispanic students than Black students held overall (23.5% vs. 35.8%) in all but two age groups. Students in a combined White/Other ethnicity category had higher proportions of MH visits than both Hispanic and Black students between ages 12 and 15. The proportion of MH visits among students with no health insurance (22.5%) was lower than for students covered by Medicaid (34.3%) or private insurance (33.9%). However, the percentage of MH visits by students with private insurance was consistently elevated (37.2-49%) in the 13-15 age range.

**CONCLUSIONS:** SBHC usage patterns for mental health issues show pronounced, non-random variation relative to age and other demographic characteristics. Understanding why these patterns occur may be helpful in effectively focusing mental health services within SBHCs.

Documentation that these patterns are replicated in other urban locations will require more widespread and consistent data collection related to SBHC patient characteristics and their care encounters over time.

*Keywords:* school-based health centers, mental health services, utilization patterns, children, adolescents, gender, race/ethnicity, insurance

### Utilization of Mental Health Services in School-based Health Centers in Connecticut

Unmet mental health (MH) needs of children are a serious public health concern. MH disorders are the most common cause of disability in the United States. Within the goals of Healthy People 2020 access to MH has been determined to be a major priority area (U.S. Department of Health and Human Services, 2013). Among children and adolescents under the age of 18 years, 1 in 5 requires services for mental, emotional or behavioral issues and of these only 1 in 5 actually receives services (Knopf et al., 2008). Children with ethnic and/or racial minority backgrounds who live in low income households are especially vulnerable to MH disorders and are less likely to have adequate access to MH services compared to their white counterparts in low income households (Alegria, Vallas, & Pumariega, 2010).

Unresolved MH issues are often a contributing factor in non-completion of high school, which in turn may lead to a lifetime of lost income and increased contact with social services and the criminal justice system (Christle, Jolivet, & Nelson, 2007; Homlong, Rosvold, & Haavet, 2013). According to some estimates 65 to 70% of youth in the juvenile justice system have MH issues (Shufelt & Cocozza, 2006). Ensuring that the MH needs of children and adolescents are met is of utmost importance to these individuals, their families and their communities.

To achieve adequate access to MH services for all children, collaboration among multiple agencies may be necessary. Partnering of agencies that are not only responsible for health but also education, transportation, food, housing and social services may be beneficial in meeting this goal (U.S. Department of Health and Human Services, 2013).

School-based health centers (SBHC) are an example of successful collaboration between health and education services to ensure that physical and MH care needs of children and adolescents are met within the schools where they spend most of their waking hours. Nationally there are over 2000 SBHCs and almost 69% are located in schools identified as economically disadvantaged (Lofink et al., 2013). Health care providers in these settings are

mindful of the role that poverty and inadequate access to health care and specifically, MH care play in the long and short term health outcomes of these children and adolescents. The providers at SBHCs therefore maintain partnerships with public health, primary care, MH and educational agencies, all of whom have a role in and commitment to keeping children healthy. The formation of such partnerships means that SBHCs are well positioned to address the health disparities faced by these children and adolescents.

Research has shown that children who utilize SBHCs, have reduced absenteeism, improved chronic disease management and better access to medical and MH care (Geierstanger, Amaral, Mansour, & Walters, 2004; Wade et al., 2008; Wang, Zhong, & Wheeler, 2005). When students have access to SBHCs, there is a positive impact on their medical care and MH care in terms of increased utilization of services and lower costs associated with these services (Guo et al., 2005; Johnson & Hutcherson, 2006; Wade et al., 2008; Wade & Guo, 2010). Among adolescents, those with access to MH services within SBHCs are more likely to use them and have a higher number of individual MH visits per year (Amaral et al., 2011; Anglin et al., 1996; Juszczak et al., 2003; Kaplan et al., 1998; Szumilas et al., 2010; Wolk & Kaplan, 1993). One study indicated that students who used the SBHC for MH services experienced improvement in their grade point averages (Walker et al., 2010).

Despite the success of SBHCs in providing comprehensive medical and MH care, funding has historically been unstable and dependent on grants and private funding (Gustafson, 2005). For the first time, under the Affordable Care Act, funding has been provided to expand and improve services at existing SBHCs (U.S. Department of Health and Human Services, 2011). Continued funding will likely be tied to quality indicators that are measurable and that reflect the services provided at SBHCs.

Presently, there is little information in the literature that documents whether or how SBHCs are obtaining meaningful data related to the scope and quality of services they provide. Designing and implementing data collection systems to reflect the services provided by SBHCs

will contribute to allocation of resources to best meet the needs of the students. They will also ensure that SBHCs in Connecticut and other states have ready access to quantitative evidence that facilitates attaining and maintaining funding under the Affordable Care Act.

The purpose of this research study was to provide a descriptive summary of utilization patterns for MH services at SBHCs in New Haven, Connecticut for the 2007-2008 and 2008-2009 school years. The immediate goal was to document trends in the frequency of student visits for mental health issues by age and to determine whether those trends differ relative to gender, ethnicity/race, and insurance status. The broader objective was to demonstrate the possibilities and limitations of using a basic clinical administrative data collection system to investigate issues related to access and outcomes for mental health care services provided through SBHCs.

## **Method**

### **Design**

This descriptive study involved an analysis of administrative data collected by clinicians in SBHCs in New Haven, Connecticut for the school years 2007-2008 and 2008-2009. Data collection was a contractual obligation for each municipality with SBHCs funded by the Connecticut Department of Public Health (DPH).

### **Setting**

The SBHCs were located in elementary, middle, “preK through 8<sup>th</sup> grade” and high schools throughout the city. New Haven has 46 public schools of which nine are high schools and 31 are elementary/middle schools. Fifteen schools in New Haven have SBHCs, three in the largest high schools and twelve in elementary/middle schools. Two of these high schools and seven of the elementary/middle schools with SBHCs in 2007-2009 period were funded by DPH and were included in this study.

All the SBHCs were staffed with both a healthcare provider and a MH provider offering a full range of physical and MH care. The healthcare providers were either nurse practitioners or

physician's assistants and all the MH providers were licensed clinical social workers (LCSW). MH providers offered individual and group therapy to the students in this setting. This included cognitive behavioral therapy and trauma based therapy. The diagnosis of MH disorder was made by the LCSWs according to DSM IV guidelines (American Psychiatric Association, 2000).

### **Data Collection**

The DPH-mandated database contained information on a "per-visit" basis. Data were collected using health and MH encounter forms which were required to be completed by all providers for each visit. The individual visits were then entered into a Clinical Fusion® database by the clerical staff for billing and program evaluation purposes (University of Colorado, 2014). At the end of the school year, all data from each municipality with SBHCs were aggregated and sent to DPH. The staff at DPH in turn combined data from all the municipalities for end of year reports related to continued funding of the SBHCs. The data included demographic information such as age, sex, race, ethnicity, grade at time of visit, location of SBHC and insurance status.

### **Participants**

Only students who attended the schools with SBHCs and who had written parental permission could receive SBHC services. The SBHCs were open only during the school year with the exception of one SBHC located in a "preK through 8<sup>th</sup> grade" school and another located in a high school that were both open for 12 months. The ages of students served by the SBHCs ranged from ages 3 years to 20 years. In this study, data were included only for visits by students between ages 5 and 18 years which is the age range typically corresponding to kindergarten through senior year of high school.

The study "population" consisted of all visits made by the students to DPH-funded SBHCs in New Haven during the 2007-2008 and 2008-2009 school years. Student encounters within the SBHCs were classified by diagnosis as being "MH visits" or not. These classifications were based on codes as specified by the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM). MH visits coded under the following categories



were included: trauma and stress related disorders, disruptive, impulse control and conduct disorders, neurodevelopmental disorders, anxiety disorders, depressive disorders, family and social disorders, substance abuse disorders, obsessive compulsive disorders, feeding and eating disorders and gender issues.

### **Data Access**

Data for the 2007-2008 and 2008-2009 school years were originally obtained from DPH by the Connecticut Association of School Based Health Centers. In turn, the School of Nursing at the University of Connecticut was contracted by the association to convert the administrative dataset into one that would support statistical analysis and could be used for research purposes.

### **Statistical Analysis**

Frequencies of all SBHC visits were tabulated relative to diagnostic group, age, gender, race/ethnicity and insurance status. The race/ethnicity categories were: Black, Hispanic, and White/Other. The combined “White/Other” category was used because relatively few students identified themselves as White, Asian, Pacific Islander or Native American. Visit frequencies were also determined for cross- tabulations between age and the gender, race-ethnicity and insurance status variables.

The frequency tabulation and cross-tabulation process was subsequently repeated with visits dichotomized into those that did or did not fall into the “MH” diagnostic group. Attention focused on tabular and graphical summaries of variation in the proportion of MH visits by age and on the possibility that the age-related pattern might differ by gender, race-ethnicity or insurance status.

Statistical testing for the significance of a “main” effect of age on the proportion of MH visits and of the “interaction effect” between age and other variables was performed using logistic regression modeling (Hosmer & Lemeshow, 2000). The goal of the modeling process was to identify specific combinations of age and/or other variables in which the proportion of MH

visits was significantly low or high. This was accomplished by using nested models to determine Pearson residuals. The residuals compared observed counts of mental health visits to the counts that would be expected in the absence of a main or interaction effect (Hosmer & Lemeshow, 2000). As with a z score, residual values smaller than -2 or greater than +2 were used to identify age groups or combinations of age and other variables in which the proportion of MH visits was significantly smaller or larger than expected from a statistical perspective.

## **Results**

During the 2007-2008 school year, 4,584 students visited the SBHCs included in the study at least once. Of these 47.5% were Black, 43.9% were Hispanic and 8.6% were White/Other. The overall racial/ethnic makeup of New Haven public schools during the 2007-2009 on average was 50% Black, 36% Hispanic and 14% White/Other (State department of education - CEDaR.). The male (50.2%) and female (49.8%) percentages among users of the SBHCs were almost equal. The majority of the students were insured under Medicaid (56.2%). There were 16.7% with private insurance and 27.1% who had no insurance. The number of students who had at least one visit in the 2008-2009 school year increased by 245 to 4,829. Of these 51.3% were Black, 40.3% were Hispanic and 7.9% were White/Other. The male (50.8%) and female (49.2%) percentages were essentially unchanged. The majority of students continued to be insured under Medicaid (58.2%) with little change in the percentage of privately insured (16.8%) and a slight decrease in those with no insurance (24.7%).

A total of 19,281 visits (across all diagnostic groups) were made to the SBHCs in New Haven over the 2007-2008 and 2008-2009 school years. As shown in Table 1, visits by females accounted for 55.9% of this total and those by males accounted for 44.1%. A majority of visits were made by students who were identified as Black (54.8%). Those who were identified as Hispanic accounted for 33.2% of visits and those identified as Whites/Others accounted for 12%.

The number of visits varied by age. The highest number occurred among 13 year olds (10.2% of the total) and the lowest among 5 year olds (3.2%). The number of visits steadily increased from age 5 to age 13 and then decreased, with 18 year olds making only 4.5% of all visits. The pattern of visits relative to age differed by gender, with visits by males dominating between ages 6 and 11 and visits by females dominating between ages 12 and 18. Visits by Blacks students were more common than those by Hispanic students and Whites/Others across all age groups. Visits by Whites/Others were especially infrequent between ages 16 and 18 ranging from 2.7% to 6.9%.

Classification of the 19,281 visits into diagnostic groups revealed that 31.8% were for MH reasons. The MH category had the highest visit frequency of all diagnostic groups. Visits for health supervision, which included health maintenance and preventative services, formed the second most common diagnostic group and accounted for 14.6% of total visits. Over 10% of visits were for “symptoms” such as headaches, menstrual cramps and pain among others. Between 1 and 6% of the visits were made for infections, for injuries and poisonings, for pregnancy and contraception, for sexually transmitted diseases, or for respiratory, skin, nervous system, musculoskeletal, eye, ear or skin conditions. Less than 1% of visits were made for dental, gastrointestinal, immunological, endocrine, cardiovascular, urinary, or hematological problems or for neoplasms.

As shown in Table 2, the highest frequency of MH visits as a percentage of visits for all diagnoses occurred among 8 year olds (42.8%). The proportion of MH visits steadily declined through age 11, but then increased, reaching a second peak at age 13 (39%). After age 13, the proportion of visits for MH diagnoses consistently decreased through age 18. Logistic regression modeling of the proportion of MH visits by age category established that age-specific differences in the observed percentages of visits for MH reasons were statistically significant. ( $\chi^2 (13)=423.53$ ;  $p<0.0001$ ). Residuals from the regression analyses highlighted

extreme excesses in the relative frequency of MH visits at ages 8 and 13 and extreme deficits for ages 16 through 18.

Among the 6136 MH visits, more visits were made by males (53.1%) than females (46.9%). Gender-specific patterns in the relative frequency of MH visits as a percentage of all visits are presented in Figure 1. The proportion of MH visits peaked at age 8 for boys (52.7%) and at age 13 for girls (39.4%). The proportions of MH visits by males and females were essentially equal from ages 12-17 and consistently decreased across that age interval. At age 18, the proportion of MH visits by girls continued to decrease, but sharply increased among boys. Logistic regression modeling indicated a statistically significant interaction between gender and age ( $\chi^2(13) = 164.67$ ;  $p < 0.0001$ ), suggesting that the gender-based differences observed within some age groups do not reflect random variation. Pearson residuals obtained from the regression analyses highlighted a significant excess in the proportion of MH visits among boys at ages of 8 (residual = +3.04) and 10 (residual = +3.85), among girls at age 13 (residual = +3.52), and among boys at age 18 (residual = +3.06) relative to what would be expected in the absence of an interaction between gender and age.

Among students who identified themselves as Black, 35.8% of the visits to the SBHCs were for MH reasons. In the Hispanic and White/Other groups, 23.5% and 36.4%, respectively, of the visits were for MH reasons. The pattern in the proportion of MH visits relative to age within each ethnicity/racial group is illustrated in Figure 2. The proportion of mental health visits peaked at age 8 for Blacks (51.6%) and Hispanic (32.9%). For Whites/Others, the peak occurred at age 14 (56%). Among Black students, the pattern of MH visits relative to age roughly followed the average of the trends for boys and girls presented in Figure 1. This was not surprising because, across all diagnostic groups, the largest proportion of visits to the SBHCs were made by Black students. In comparison to Black students, the age-specific percentages of MH visits by Hispanic students were lower at all ages, except ages 11 and 15. At those ages, the proportions of MH visits were roughly equal for Hispanic and Black students and, between

those ages, the proportions for the two groups drew closer. When the age-specific proportions of MH visits by students in the White/Other group are compared to those for Blacks, considerably lower percentages are noted for ages 6 through 10 and substantially higher ones for ages 13 through 15. Logistic regression revealed a statistically significant interaction between age at visit and ethnicity/race ( $\chi^2$  (26) = 328.86;  $p < 0.0001$ ). Residuals from these analyses accentuated lower relative frequencies of MH visits than expected by Blacks at ages 13, 14 and 15 (residuals = -3.06, -4.11, and -4.16, respectively), an excess of visits by Hispanics at age 11 (residual = +5.83), deficits in visits by White/Other students at ages 7 and 8 (residuals = -3.72 and -5.58), and elevated frequencies among White/Other students at ages 13 through 15 (residuals = +4.84, +6.14, and +5.17).

Table 3 shows that, among 19,244 SBHC visits for which student insurance status was known, 11,488 (59.6%) were made by students insured under Medicaid, 3,826 (19.8%) were made by students with private health insurance, and 3,930 (20.4%) were made by students with no insurance. There were 37 students whose insurance status was unknown and they were not included in this table or the statistical analyses based on the table. The relative frequencies of MH visits as a percentage of all visits were comparable among those insured under Medicaid (34.3%) and those with private insurance (33.9%), but were much lower for students with no insurance (22.5%;  $p < 0.0001$ ). Patterns in the proportions of MH visits relative to age were difficult to discern within the three insurance status categories, but logistic regression indicated a significant interaction between age at visit and insurance status ( $\chi^2$  (26) = 195.58;  $p < 0.0001$ ). Residuals provided very strong evidence for significantly fewer MH visits than expected at age 15 among those with Medicaid (residual = -3.55) and at age 8 among those with private insurance (residual = -5.11) and significantly more visits than expected at ages 13 and 15 among those with private insurance (residuals = +3.12 and +4.46, respectively).

## Discussion

This study sought to describe the utilization of MH services over two years in 9 SBHCs in an inner city. Initially, a basic analysis of frequencies of all visits made to these SBHCs was done. This was followed with a more detailed analysis of MH visits to determine if trends relative to age, gender, ethnicity/race and insurance status existed.

Overall the frequency of visits for any reason (MH or not) at age 13 years was almost three times more than visits at age five years. The increase in visits among this age group could be speculated to coincide with puberty and changes in educational expectations. Typically, at 13 years children are undergoing not only developmental changes but also transitioning to high school which can be stressful (Cauley & Jovanovich, 2006). Access to health and MH services within SBHCs, where needs related to these stresses can be addressed may help to make these transitions somewhat smoother. Though the male to female ratio among SBHC users was close to one, a higher number of visits across all diagnostic groups were made by females than by males. This finding is similar to what was reported in previous studies on SBHC users (Parasuraman & Shi, 2014; Wade et al., 2008). The pattern of visits among males and females, however, varied relative to age with higher proportions among younger males and older females. This suggests that the needs for services provided by the SBHCs differ in ways that depend on specific combinations of age and gender. Further investigation into these differences may be worthwhile in planning for allocation of services and resources at SBHCs and in identifying potentially underserved groups in some SBHC settings.

MH visits had the highest frequency of all visits made to the SBHCs over two years. These findings were similar to those in several previous studies (Amaral et al., 2011; Anglin et al., 1996; Juszczak et al., 2003). Considering that, nationwide, youth and adolescents who seek community MH services have fewer than 6 visits in a lifetime, these findings indicate that SBHCs may be providing much needed access (Merikangas et al., 2011). A significant finding in this analysis was the high frequency of MH visits among 8 year olds. The reason for this phenomenon can only be speculated upon since the database, as configured for this study,

included no student identifiers and did not support further investigation. It may correlate with increased demands of the educational systems. At the time of data collection, third grade students (typically, ages 8-9) participated in state wide educational testing for the first time in their academic careers (Connecticut State Department of Education, 2015, January 29). There is evidence that increased academic pressure due to statewide testing may lead to anxiety in children for which they may have sought MH services at the SBHCs (Segool, Carlson, Goforth, von, & Barterian, 2013).

A higher number of MH visits to SBHCs were made by males than females. These findings are consistent with previous research studies that have shown similar findings especially among African American and Hispanic males (Husky, Kanter, McGuire, & Olfson, 2011; Juszczak et al., 2003). Typically less than 10% of African American and Hispanic adolescent males seek out MH services (Substance Abuse and Mental Health Services Administration, 2009). MH services being sought out more often by males than females may indicate that SBHCs are successful in reaching a population which is otherwise hard to reach.

Analysis also revealed that males who were 8 years old had the highest proportion of MH visits implying that males disproportionately account for the high frequency of MH visits at that age. Visits made by females did not follow the same pattern as males prior to age 12, but did coincide with the male trend between ages 12 and 17. This suggests that MH needs between the two genders differ, with males more frequently needing support in childhood and females needing levels of support comparable to males during the adolescent years.

Though Black students had the highest number of total visits and MH visits, it cannot be assumed that their needs are higher than the other racial/ethnic groups since, demographically; there were more Black students registered in New Haven public schools than Hispanics or White/Other students (State department of education - CEDaR.). Among Hispanics, the proportions of MH visits between ages 11 and 15 year olds were comparable to those by Blacks. The age trend in the frequency of MH visits among White/Other students was

very similar to that for Hispanics up to age 11 and from age 16 onward, but was much higher than both Hispanics and Blacks at ages 12 through 15. These findings indicate that MH needs among the different racial and ethnic groups may vary by age. Further exploration of this result is necessary so outreach efforts can be customized to assure that children and adolescents belonging to different racial and ethnic groups do not go without the MH support they need through SBHCs.

A majority of the visits were made by students on Medicaid. The number of visits among students with private insurance and no insurance were almost equal. Overall the proportions of MH visits did not vary much between those who were on Medicaid or privately insured. However, MH visits among those with no insurance were much lower. This suggests that even though lack of insurance is not a barrier to services provided by SBHCs, students without insurance may not be accessing them. It would be interesting to determine whether reductions in the numbers of uninsured individuals after implementation of the Affordable Care Act lead to greater utilization of SBHCs for MH reasons.

The trends of visits, relative to age, varied with insurance status. The frequencies of visits by those on Medicaid and those without insurance were highest in the younger age groups while among the privately insured they peaked a few years later. This would suggest that those with Medicaid and no insurance accessed MH services earlier in SBHCs than those with private insurance. Such a phenomenon could be related to those with private insurance having access to outside MH providers as opposed to those on Medicaid and with no insurance, but this rationale does not explain why those with private insurance have a higher proportion of MH visits during adolescence. The influence of insurance status on use of SBHCs would be worth investigating to substantiate if there are social and economic factors reflected by students' insurance coverage status that influence the use of MH services.

## **Limitations**



This research was limited in that it was a secondary analysis of an existing database that was assembled for administrative rather than research purposes. Though the analysis was limited to data from SBHCs that were funded by DPH in New Haven, the SBHCs excluded from the study did not differ much in terms of their demographics or locations (State department of education - CEDaR.). The only significant factor for their exclusion was that their funding stream was not from DPH. The structure of the database was based on “visits” rather than on the population of all students in the schools or registered as potential SBHC patients/clients. This structure, and the limited number of variables it contained, did not support analyses that might yield deeper understanding of variations in utilization of MH services by ages, gender, race/ethnicity or insurance status. The data used for this research also precedes the Affordable Care Act and the ensuing increases in health insurance coverage for children and adolescents. Thus, it may not accurately reflect current MH service usage patterns. Further information on how lack of insurance currently affects use of SBHC services is especially needed. Moreover, the findings from New Haven may not be representative of other urban communities. Compared with other regions of the state, New Haven has a relatively rich saturation of MH services for children and adolescents including a large hospital with two campuses in the city, two community health centers, two universities and child guidance agencies.

## **Conclusions**

This study shows the usefulness of data systems in capturing the utilization of MH services in SBHCs of one community. Despite the limitations, it provided valuable initial information that can be used to plan for resources tailored to improve existing services in SBHCs. The observed variations in the frequency of visits could be used to plan where interventions on usage of MH services need to be focused. The age-based differences in frequency of visits by males and females would warrant that adequate supports be available for each gender depending on their age group. Variations in the frequency of MH visits across racial and ethnic groups also suggest that the allocation of resources may need to be aligned to

the needs of the population of the SBHC. Disparities in frequency of visits based on insurance status would justify investigation into how insurance status plays a role in entry into MH services for children both in SBHC and non-SBHC settings. Outreach efforts can be guided by these findings so needs are met regardless of insurance status.

Data systems designed to adequately capture the value of services are important tools for the growth and sustainability of SBHCs. As a descriptive study this investigation has pointed out important variations in MH visits to SBHCs in an inner city. However, to begin to understand why those variations occur, establishment of databases with more comprehensive information regarding SBHC populations and patient encounters is essential. To confirm the determinants of the variations in utilization, it is likely that more complex study designs are needed.

## **IMPLICATIONS FOR SCHOOL HEALTH**

The findings from this study provide a template for outcomes of MH services in SBHCs and can be used as an impetus for developing data systems that capture not only demographic information but also reflect the substance and quality of MH care offered at SBHCs. Data systems that are able to accurately demonstrate the extent of the services offered by SBHCs are essential for strengthening and growing the program. As mentioned previously, the majority of SBHCs are located in underserved areas. Targeting at risk populations of children and adolescents who need the services but may not be accessing them in a timely way may allow MH services provided at SBHCs to positively impact the lifelong outcomes of the children and adolescents they serve. This study demonstrated significant differences in use of MH services relative to age and gender, especially among 8 year old and 18 year old males. It also documented frequent usage of MH services in SBHCs by males and females at age 13. These finding warrant further investigation to guide allocation of appropriate resources at SBHCs so needs of these children and adolescents are met. Data collection systems could also be improved to accurately capture the utilization of services by children and adolescents both in the short term and longitudinally. The major focus of SBHCs is health promotion, disease

prevention, risk reduction, early intervention and mental health services (Richardson & Wright, 2010). Data systems designed to capture richer details of these indicators of health and MH visits are better suited for SBHCs. Data from such systems may provide more accurate information on SBHCs and could be used to strengthen individual SBHCs with continuous quality improvement initiatives. It could also be used to advance funding and sustainability both at the local and national level. These systems could also be customized to link educational outcomes and use of MH services in the SBHCs thus providing valuable information to both the healthcare and educational agencies.

**Human Subjects Approval Statement**

This study was approved as exempt by University of Connecticut institutional review board and presented minimal risk to human subjects.

## References

- Alegria, M., Vallas, M., & Pumariega, A. J. (2010). Racial and ethnic disparities in pediatric mental health. *Child and Adolescent Psychiatric Clinics of North America*, 19(4), 759-774. doi:10.1016/j.chc.2010.07.001; 10.1016/j.chc.2010.07.001
- Amaral, G., Geierstanger, S., Soleimanpour, S., & Brindis, C. (2011). Mental health characteristics and health-seeking behaviors of adolescent school-based health center users and nonusers. *The Journal of School Health*, 81(3), 138-145. doi:10.1111/j.1746-1561.2010.00572.x; 10.1111/j.1746-1561.2010.00572.x
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed ed.) doi:doi:10.1176/appi.books.9780890423349
- Anglin, T. M., Naylor, K. E., & Kaplan, D. W. (1996). Comprehensive school-based health care: High school students' use of medical, mental health, and substance abuse services. *Pediatrics*, 97(3), 318-330.
- Cauley, K. M., & Jovanovich, D. (2006). Developing an effective transition program for students entering middle school or high school. *Clearing House*, 80(1), 15-25.
- Christle, C. A., Jolivette, K., & Nelson, C. M. (2007). School characteristics related to high school dropout rates. *Remedial & Special Education*, 28(6), 325-339. doi:doi:10.1177/07419325070280060201
- Connecticut State Department of Education. (2015, January 29). Connecticut mastery test. Retrieved from <http://www.sde.ct.gov/sde/cwp/view.asp?a=2748&q=334702>

- Geierstanger, S. P., Amaral, G., Mansour, M., & Walters, S. R. (2004). School-based health centers and academic performance: Research, challenges, and recommendations. *Journal of School Health*, 74(9), 347-352. doi:10.1111/j.1746-1561.2004.tb06627.x
- Guo, J. J., Jang, R., Keller, K. N., McCracken, A. L., Pan, W., & Cluxton, R. J. (2005). Impact of school-based health centers on children with asthma. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, 37(4), 266-274. doi:10.1016/j.jadohealth.2004.09.006
- Gustafson, E. M. (2005). History and overview of school-based health centers in the US. *Nursing Clinics of North America*, 40(4), 595-606.
- Homlong, L., Rosvold, E. O., & Haavet, O. R. (2013). Can use of healthcare services among 15-16-year-olds predict an increased level of high school dropout? A longitudinal community study. *BMJ Open*, 3(9), e003125-2013-003125. doi:10.1136/bmjopen-2013-003125; 10.1136/bmjopen-2013-003125
- Hosmer, D. W., & Lemeshow, S. (2000). *Applied logistic regression* (2nd ed.). New York: John Wiley & Sons, Inc.
- Husky, M. M., Kanter, D. A., McGuire, L., & Olfson, M. (2011). Mental health screening of african american adolescents and facilitated access to care. *Community Mental Health Journal*, doi:10.1007/s10597-011-9413-x
- Johnson, V., & Hutcherson, V. (2006). A study of the utilization patterns of an elementary school-based health clinic over a 5-year period. *Journal of School Health*, 76(7), 373-378.

- Juszczak, L., Melinkovich, P., & Kaplan, D. (2003). Use of health and mental health services by adolescents across multiple delivery sites. *Journal of Adolescent Health, 32*(6), 108-118. doi:[http://dx.doi.org/10.1016/S1054-139X\(03\)00073-9](http://dx.doi.org/10.1016/S1054-139X(03)00073-9)
- Kaplan, D. W., Calonge, B. N., Guernsey, B. P., & Hanrahan, M. B. (1998). Managed care and school-based health centers. use of health services. *Archives of Pediatrics & Adolescent Medicine, 152*(1), 25-33.
- Knopf, D., Park, M. J., & Mulye, T. P. (2008). *The mental health of adolescents: A national profile*. University of California, San Francisco: National Adolescent Health Information Center.
- Lofink, H., Kuebler, J., Juszczak, L., Schlitt, J., Even, M., Rosenberg, J., & White, I. (2013). *2010-2011 school-based health alliance census report*. (). Washington, D.C.: School-Based Health Alliance.
- Merikangas, K. R., He, J. P., Burstein, M., Swendsen, J., Avenevoli, S., Case, B., . . . Olfson, M. (2011). Service utilization for lifetime mental disorders in U.S. adolescents: Results of the national comorbidity survey-adolescent supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry, 50*(1), 32-45. doi:10.1016/j.jaac.2010.10.006; 10.1016/j.jaac.2010.10.006
- Parasuraman, S. R., & Shi, L. (2014). Differences in access to care among students using school-based health centers. *The Journal of School Nursing: The Official Publication of the National Association of School Nurses*, doi:1059840514556180 [pii]

Richardson, J. W., & Wright, T. D. (2010). Editor's choice. advancing school-based health care policy and practice. *American Journal of Public Health, 100*(9), 1561-1561.

doi:10.2105/AJPH.2010.195727

Segool, N. K., Carlson, J. S., Goforth, A. N., von, d. E., & Barterian, J. A. (2013). Heightened test anxiety among young children: Elementary school students' anxious responses to high-stakes testing. *Psychology in the Schools, 50*(5), 489-499.

Shufelt, J. L., & Cocozza, J. J. (2006). *Youth with mental health disorders in the juvenile justice system: Results for a multi-state, multi-system prevalence study*. (policy brief).

Delmar, NY: National center for mental health and juvenile justice.

State Department of Education - CEDaR. Retrieved from

<http://sdeportal.ct.gov/Cedar/WEB/ResearchandReports/SSPReports.aspx>

Substance Abuse and Mental Health Services Administration. (2009). *Results from the 2008 national survey on drug use and health: National findings*. Rockville, MD.: Office of Applied Studies.

Szumilas, M., Kutcher, S., LeBlanc, J. C., & Langille, D. B. (2010). Use of school-based health centres for mental health support in cape breton, nova scotia. *Canadian Journal of Psychiatry, 55*(5), 319-328.

U.S. Department of Health and Human Services. (2011). The affordable care act and health centers. Retrieved from <http://bphc.hrsa.gov/about/healthcenterfactsheet.pdf>

U.S. Department of Health and Human Services. (2013). Healthy people 2020. Retrieved from <http://www.healthypeople.gov/2020/LHI/mentalHealth.aspx>

- Wade, T. J., & Guo, J. J. (2010). Linking improvements in health-related quality of life to reductions in medicaid costs among students who use school-based health centers. *American Journal of Public Health, 100*(9), 1611-1616. doi:10.2105/AJPH.2009.185355
- Wade, T. J., Mansour, M. E., Guo, J. J., Huentelman, T., Line, K., & Keller, K. N. (2008). Access and utilization patterns of school-based health centers at urban and rural elementary and middle schools. *Public Health Reports (Washington, D.C.: 1974), 123*(6), 739-750.
- Walker, S. C., Kerns, S. E., Lyon, A. R., Bruns, E. J., & Cosgrove, T. J. (2010). Impact of school-based health center use on academic outcomes. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine, 46*(3), 251-257.  
doi:10.1016/j.jadohealth.2009.07.002
- Wang, L. Y., Zhong, Y., & Wheeler, L. (2005). Direct and indirect costs of asthma in school-age children. *Preventing Chronic Disease, 2*(1), A11.
- Wolk, L. I., & Kaplan, D. W. (1993). Frequent school-based clinic utilization: A comparative profile of problems and service needs. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine, 14*(6), 458-463.



Table 1.

*Visits to School-Based Health Centers for All Causes/Diagnoses, Stratified by Age, City of New Haven, Connecticut, 2007-2009.*

Age in years	Number of visits (% of total)	Percentage of Visits at Specific Ages by Gender and Ethnicity/Race Categories				
		Males	Females	Blacks	Hispanics	Whites/Others
5	622 (3.2)	45.0	55.0	46.6	37.6	15.7
6	930 (4.8)	53.1	46.9	49.1	37.0	13.9
7	1,097 (5.7)	53.0	47.0	60.3	27.6	12.1
8	1,467 (7.6)	56.6	43.4	58.6	30.7	10.8
9	1,423 (7.4)	54.7	45.3	57.6	32.7	9.6
10	1,457 (7.6)	59.0	41.0	48.1	35.8	16.2
11	1,627 (8.4)	56.3	43.7	47.4	35.6	17.0
12	1,844 (9.6)	49.2	50.7	56.3	29.2	14.5
13	1,974 (10.2)	43.9	56.1	50.6	30.9	18.5
14	1,464 (7.6)	43.4	56.6	45.1	37.8	17.0
15	1,287 (6.7)	29.4	70.6	53.4	36.7	9.9
16	1,531 (7.9)	21.9	78.1	67.3	30.0	2.7
17	1,690 (8.8)	21.8	78.2	63.6	33.6	2.9
18	868(4.5)	30.4	69.6	58.9	34.2	6.9
Total	19,281 (100)	44.1	55.9	54.8	33.2	12.0

Table 2.

*Visits to School-Based Health Centers for Mental Healthcare, Stratified by Age, City of New Haven, Connecticut, 2007-2009.*

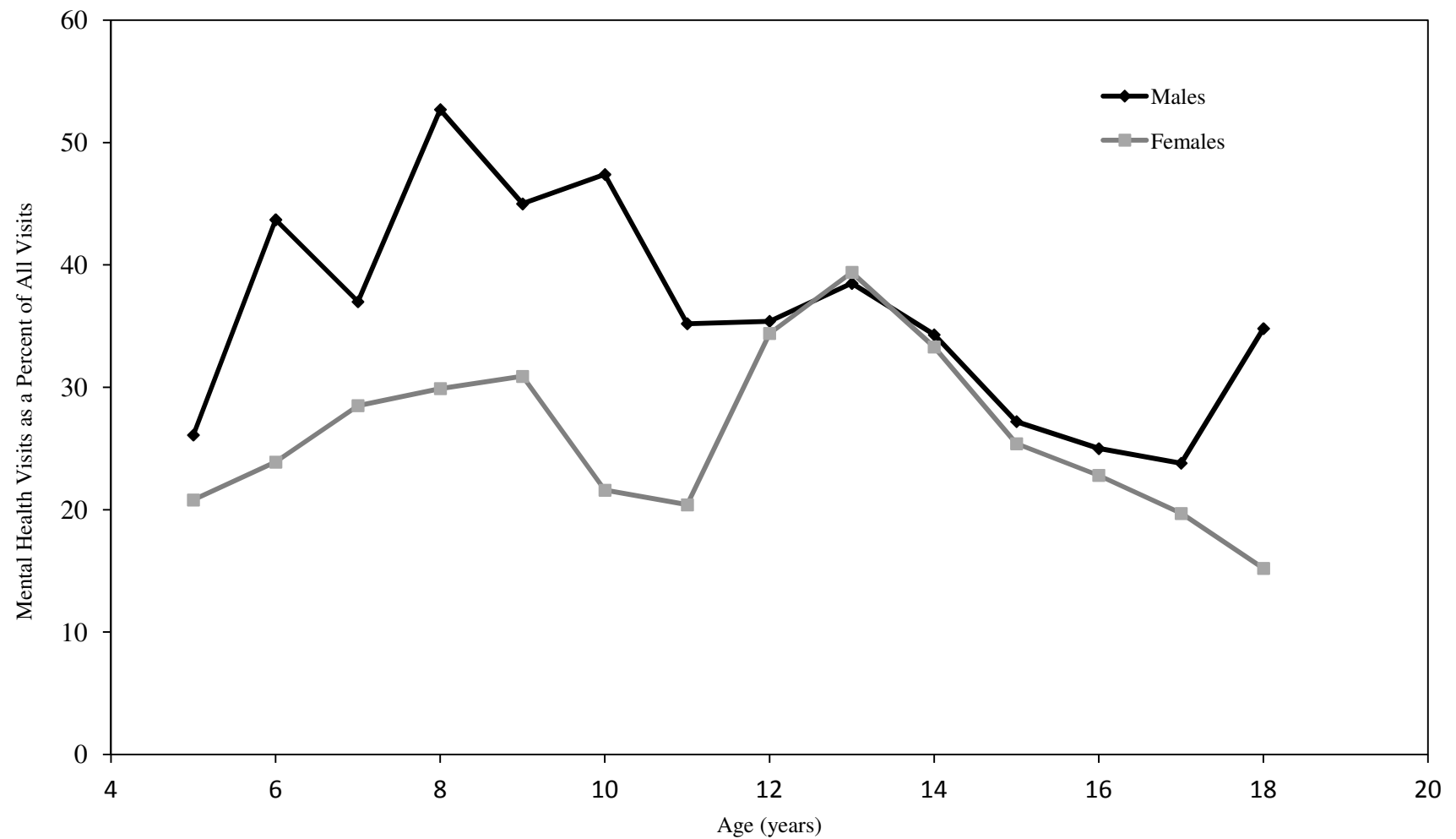
Age in years	Number of mental health visits	Mental Health Visits as a Percentage of All Visits at a Specific Age	Pearson residuals*
5	144	23.2	-4.64
6	320	34.4	+1.69
7	362	33.0	+0.84
8	628	42.8	+9.03
9	549	38.6	+5.47
10	536	36.8	+4.07
11	467	28.7	-2.70
12	643	34.9	+2.81
13	770	39.0	+6.85
14	494	33.7	+1.58
15	334	26.0	-4.52
16	357	23.3	-7.15
17	348	20.6	-9.91
18	184	21.2	-6.72
Total	6,136	31.8	

\*Based on a logistic regression model assuming no association between age and the proportion mental health visits

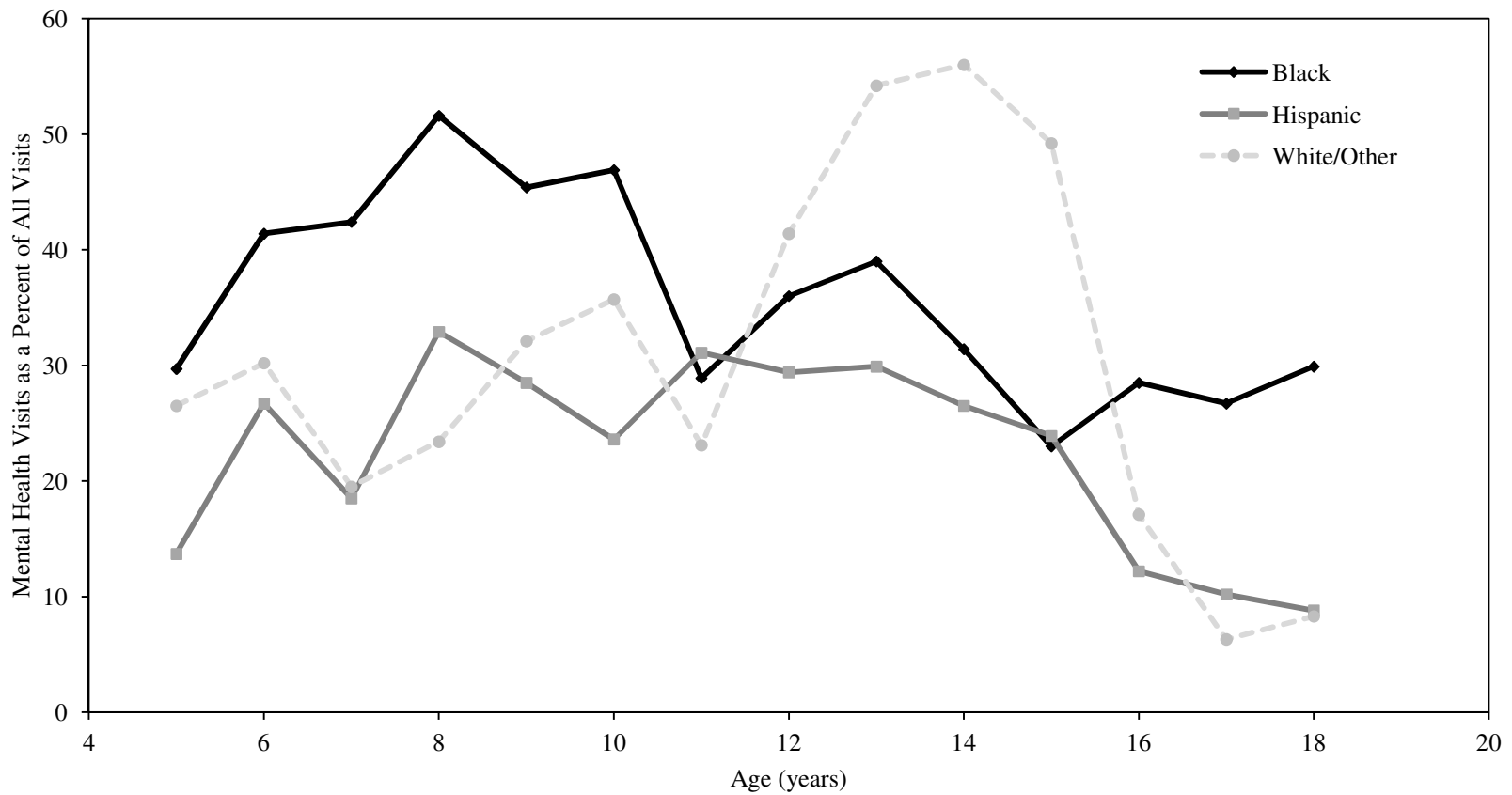
Table 3.

*Visits to School-Based Health Centers Stratified by Age and Insurance Status, City of New Haven, Connecticut, 2007-2009.*

Age in years	Number Visits by Students with Medicaid	Number Visits by Students with Private Insurance	Number Visits by Students with No Insurance	Number of Mental Health Visits by Students with Medicaid (Age- Specific Percentage)	Number of Mental Health Visits by Students with Private Insurance (Age Specific Percentage)	Number of Mental Health Visits by Students with No Insurance (Age Specific Percentage)
5	334	167	114	91 (27.2)	28 (16.8)	25 (21.9)
6	635	134	161	257 (40.5)	37 (27.6)	26 (16.1)
7	674	255	164	234 (34.7)	96 (37.6)	32 (19.5)
8	993	225	249	462 (46.5)	64 (28.4)	102 (41)
9	916	245	245	407 (44.4)	82 (33.5)	44 (18)
10	926	282	244	367 (39.6)	125 (44.3)	44 (18)
11	1,004	356	267	315 (31.4)	99 (27.8)	53 (19.9)
12	1,234	324	282	473 (38.3)	96 (29.6)	74 (26.2)
13	1,200	429	345	441 (36.8)	210 (49)	119 (34.5)
14	905	304	255	324 (35.8)	113 (37.2)	57 (22.4)
15	623	307	357	136 (21.8)	124 (40.4)	74 (20.7)
16	776	290	465	182 (23.5)	87 (30)	88 (18.9)
17	806	352	532	149 (18.5)	94 (26.7)	105 (19.7)
18	462	156	250	102 (22.1)	41 (26.3)	41 (16.4)
Total	11,488	3,826	3,930	3,940 (34.3)	1,296 (33.9)	884 (22.5)



*Figure 1.* Frequency of Mental Health Visits within School-Based Health Centers as a Percentage of Visits for All Causes/Diagnoses by Age and Gender, New Haven, Connecticut, 2007-2009.



*Figure 2.* Frequency of Mental Health Visits within School-Based Health Centers as a Percentage of Visits for All Causes/Diagnoses Based on Age and Race/Ethnicity, New Haven, Connecticut, 2007-2009.

## CHAPTER 5

### DISCUSSION

The purpose of this dissertation was to evaluate the provision of mental health services in SBHCs located in urban, racially segregated areas of poverty using a combination of qualitative and quantitative approaches. Knowledge gained from this study may contribute to building and sustaining stronger collaborative relationships between the health and educational professionals involved in the delivery of mental health services in school settings. It may also contribute to the development of more universal and better planned data collection systems that would routinely provide information documenting accessibility, utilization and outcomes of mental health services provided through SBHCs. Three individual studies on different aspects of providing mental health services to children and adolescents through SBHCs were conducted. This chapter will include a review of the studies and a discussion of their findings. Limitations of the studies and recommendations for future research will also be discussed.

The first study (Paper 1) in this dissertation was a metasynthesis of six research studies. The goal of the metasynthesis was to gain a deeper understanding of the experiences of African American adolescents in dealing with mental health conditions. Noblit and Hare's method was used for analysis of the studies (Noblit & Hare, 1988). The four reciprocal themes that resulted from the analysis revealed the experiences of these adolescents as they came to terms with their mental health issues and sought help. The themes were uncertainty and soul searching, strength of the inner circle, shame and reluctance and belief in the system.

The second study (Paper 2) of the dissertation was a systematic review conducted to assess existing published evidence on the provision of mental health services in SBHCs in elementary, middle and high schools. After an extensive search of the literature, 23 research studies were selected. The review followed methodology proposed by the Centre for Reviews and Dissemination (NHS Centre for Reviews and Dissemination, 2009). Due to the diversity of outcome measures and heterogeneity of interventions, a narrative synthesis was deemed

appropriate. The two aspects of mental health services in SBHCs explored were access to mental health services and content of mental health visits.

The third and final study (Paper 3) of this dissertation was a descriptive summary of the utilization patterns of mental health services at SBHCs in New Haven, Connecticut for the 2007-2008 and 2008-2009 school years. A secondary analysis of administrative data collected by clinicians during the 2 school years was conducted. Frequencies of all mental health visits were examined relative to age, gender, race/ethnicity, insurance status and ICD-9 codes. Logistic regression was used to evaluate variation in the frequency of mental health visits relative to age and to assess interactions between age and other demographic variables.

The three studies explored different elements in the spectrum of mental health issues among children and adolescents and in the services by which SBHCs responded to them. In combination, they yield abundant information concerning who seeks services, why they seek them and how the services are provided. Each of the themes in the metasynthesis (Paper1) provided an insight into the process African American adolescents underwent in recognizing, accepting and then seeking help for their mental health issues. The components of hesitation, reaching out and the stigma in coming to terms with their conditions before seeking help were revealed. The role of the inner circle, which usually comprised of close family members, in providing insight and support during this period was also highlighted.

Though the themes were discussed separately, it is imperative to recognize that they were a pendulum that swung back and forth against a backdrop of shame and stigma. The support of the inner circle may or may not have been sought until after the reflection of mental health status within. On the other hand, it may have been the inner circle that recognized the change in behavior and brought it to the attention of the adolescent thus resulting in self-reflection. The process of reaching out to the system for help was influenced by the role shame and stigma played in the recognition and acceptance of mental health issues both by the adolescent and the inner circle.

The systematic review (Paper 2) showed that up to 30% of visits made to the SBHCs were for mental health reasons. The review also revealed that SBHCs provided much needed access to students with mental health issues who were more likely to access services in SBHCs than in non-school settings. Long term presence of SBHCs also increased access across the years indicating that, with time, more students sought mental health services in the SBHCs. Students who exhibited high risk behaviors and had greater mental health difficulties were more likely to have sought services at SBHCs as were students with either public or no health insurance. Though more females sought mental health services, there was evidence that SBHCs were successful in reaching males as well. When insurance groups were compared, the systematic review found that students with no insurance or public insurance were more likely to have sought mental health services at SBHCs.

In the descriptive study (Paper 3), 31.8% of visits to New Haven SBHCs funded by the Connecticut Department of Public Health were for mental health reasons. This was similar to the findings in the systematic review (Paper 2) whereby up to 30% of the visits were for mental health reasons. More mental health visits were made by males than females despite the fact that females had a higher overall total of SBHC visits. This finding contrasted with that from the systematic review (Paper 2) which found that females sought mental health services at SBHCs more often. Mental health visits as a proportion of all visits were higher for boys at age 8 years and girls at age 13 years. There were more Black students registered in New Haven schools, so it was not surprising that they had a higher number of mental health visits compared to Hispanics or White/Other. While mental health visits as a percentage of all visits were similar among students in the Black and White/Other categories, the percentage of mental health visits by Hispanics were substantially lower. The majority of mental health visits were made by students on Medicaid or private insurance. This finding contrasted somewhat from that in the systematic review (Paper 2) whereby students with no insurance or public insurance were more likely to have had mental health visits in SBHCs.



Each of these studies provides evidence on different aspects of the mental health needs of children and adolescents. The metasynthesis (Paper 1) provides a perception into the experiences of adolescents through their voices as they came to terms with their mental health conditions and seek help. Since most SBHCs are located in urban areas with significant numbers of racial and ethnic minorities, understanding the experiences and motivations of those who seek mental health services in these settings is essential (Lofink et al., 2013). Having such information is critical to the nurse practitioners and mental health providers in SBHCs who need to recognize and support adolescents throughout the process of coming to terms with their conditions and reaching out for help.

The other two studies (Papers 2 and 3) provide evidence on mental health services in SBHCs through synthesis of existing literature and analysis of an administrative database. In both studies more than 30% of SBHC visits were for mental health visits. These findings are both concerning and encouraging. On the one hand, they document the high prevalence of mental health issues among elementary, middle, and high school students. On the other hand, they attest to the success of SBHCs in providing access for mental health care against a national backdrop in which few children and adolescents who need mental health services receive them (Merikangas et al., 2010). The review also indicated that SBHCs not only provided access to mental health services but also that those students who needed services were more likely to use them in that realm. The findings from the descriptive study bring to light the different patterns of SBHC utilization for mental health problems relative to age, gender, race/ethnicity and insurance status. Findings from this study may be valuable for planning and allocation of resources at the SBHCs insofar as they define baselines that could be used to identify potentially underserved groups in some SBHC settings.

Together the three studies provide a deeper understanding of the value and scope of mental health services offered through SBHCs. Understanding the needs of the children and adolescents and documenting the provision of mental health services in SBHCs are essential

for planning early intervention strategies and for providing appropriate and timely mental health services.

### **Implications for School-Based Health**

The findings from the three studies suggest that SBHCs provide essential services to underserved children and adolescents, a population that is not able to access other resources easily. Most SBHCs are located in urban areas where the potential for exposure to childhood toxic stress is high (Anakwenze, 2013; Lofink et al., 2013). Such areas experience poverty, inadequate access to healthcare and disparities in the quality of health care (Anakwenze, 2013). As evidenced by the systematic review (Paper 2) and other studies SBHCs, increase access by providing healthcare in a convenient location (Juszczak et al., 2003; Kisker & Brown, 1996). The health care services offered at SBHCs are qualitatively different than those offered in other primary care settings (Clayton, Chin, Blackburn, & Echeverria, 2010). Nurse practitioners and mental health providers in these settings strive to offer comprehensive medical and mental health services that holistically address biological, social, behavioral and economical determinants of health. For children and adolescents to achieve their best potential in health and educational outcomes, all of these determinants have to be addressed.

Nurse practitioners and mental health providers in SBHCs are often the first healthcare professionals who come into contact with children and adolescents in underserved areas. Consequently they are frequently the first providers to recognize their medical and mental health needs and are positioned to implement early intervention strategies addressing their needs. They can provide counsel and support to the child and his or her family in accessing services. Furthermore, they can play instrumental roles in the continuity of care and coordination of services in order to ensure that needs are met through the entirety of the treatment. Since SBHCs exist in environments that are familiar to students and their families, trusting relationships between them and their providers are more likely to be facilitated.

The availability of comprehensive mental health services in SBHCs may help children and adolescents buffer some of the repercussions of the stress experienced in their daily lives. Many of the social determinants such as poverty, toxic neighborhoods, crime and lack of adequate housing that have resulted in the proliferation of SBHCs also affect educational outcomes (Richardson & Wright, 2010). Having access to SBHCs with comprehensive medical and mental health services has been shown to improve educational outcomes (Walker et al., 2010). Such evidence and the lack of consistency of mental health services in schools would point to the value of nurturing and growing partnerships and collaborations between SBHCs and educational institutions. Cultivating strong alliances between the two disciplines could potentially optimize the impact of health and education and unleash the potential of children and adolescents in underserved areas.

To achieve this goal, high quality services within SBHCs are necessary. Though schools are the largest providers of mental health services, the services they provide are not consistent and are subject to local and federal budget constraints (Burns et al., 1995; Leaf et al., 1996; Merikangas et al., 2010; Oliff et al., 2012). The establishment of SBHCs that are fully staffed with health and mental health providers should therefore be promoted. Furthermore, the integration of SBHCs within the community at large should be encouraged so collaborations and partnerships between schools and community organizations can be established. Strengthening ties with community resources may play an important role in optimizing the health and educational outcomes of children and adolescents.

To attain such standards and gain continued support of SBHCs, data collection systems that are customized to better capture access, usage patterns and patient health outcomes need to be developed. While there are almost 2000 SBHCs around the country, none are the same in terms of staffing or even number of hours they are available (Lofink et al., 2013). Diversity in the models of SBHCs is tied, in part, to funding that is not consistent and that in many cases is not matched to the needs of the communities they serve. To develop a standardized model for

SBHCs, data collection systems that can reflect the value of the services provided in SBHCs are necessary. Currently most SBHCs in Connecticut use data collection systems that are tailored to collecting data for billing purposes. These systems do not provide longitudinal information on patients and they cannot be synchronized with educational databases to capture outcomes that may reflect links between health and education. The development of data collection systems that can be used to show quality outcomes of SBHCs and linkages with educational measures is necessary. Such systems would provide information that could be used to sustain and strengthen the funding streams for SBHCs.

### **Limitations**

Though the three studies provided valuable information, each had limitations. Two of the studies involved analyses of secondary data. The metasynthesis (Paper1) was an interpretation of studies by other authors and the descriptive summary (Paper 3) was an analysis of an administrative database. The available data for two of the three studies was skewed towards the adolescent age groups.

Only six studies were included in the metasynthesis indicating the lack of research in this area. Of the six studies included, three were by the same author and two of those used the same sample. In that sample, most participants were dealing with depression as a mental health condition.

The systematic review was limited by lack of robust studies quantifying the efficacy or effectiveness of mental health services within SBHCs. Most of the data from the studies reviewed was collected directly from students and parents of students who used the SBHCs and could conceivably be biased. The availability of mental health services and providers was not consistent across all settings making it impossible to evaluate common services across all settings.

The descriptive study was limited in that only SBHCs that were funded by Department of Public Health were included in the database. Furthermore, the structure of the database was

based on “visits” and not on the population of students in the schools or who were registered to use the SBHCs. It also contained limited variables and did not support analyses that might have yielded a deeper understanding of differential patterns in utilization of mental health services by age, gender, race/ethnicity and insurance status.

### **Future Research**

To adequately meet the needs of children and adolescents, research demonstrating the quality and impact of care offered in SBHCs is essential. There are several areas where deeper understanding is needed to achieve this goal. There is a dearth of qualitative research exploring the experiences of the children and adolescents who receive health and mental healthcare in SBHCs. Giving voice to the experiences of those that are served by SBHCs can provide health and mental health care providers with an insight into their needs that will contribute to improving and refining services.

In conducting the systematic review (Paper 2) it was evident that most of the research in SBHCs has been focused on the adolescent population. This is understandable since SBHCs were first established to address adolescent health issues and were not established in elementary and middle schools until later. However, over the past 20 years the number of SBHCs in elementary and middle schools has grown and research has not kept pace. To better serve children in elementary and middle schools, evidence based studies demonstrating impact and quality of mental health care in SBHCs are essential.

For the overall growth and sustainability of SBHCs, additional research focused on developing and evaluating data collection systems is needed. By evaluating existing data systems, new systems capable of demonstrating the quality and benefits of providing health and mental health care in this realm can be developed. Systems that accurately capture the quality and impact of services offered by SBHCs can provide evidence for growth and continued funding of SBHCs.

### **Conclusions**

In conclusion, the knowledge gained from the three studies in this dissertation contributes to the body of existing knowledge on mental health services in SBHCs. The studies demonstrate that mental health visits comprise of almost one third of all visits made to SBHCs. This indicates that when there is access, mental health services will be used. Though not without limitations, this dissertation demonstrates the value and importance of mental health services in SBHCs to the children and adolescents they serve. Thus, continued support and expansion for the provision of comprehensive health and mental health services within the realm of the child's or adolescent's educational environment should be encouraged. Health and educational institutions both stand to benefit from the establishment of SBHCs. With strong partnerships between the two entities, mitigation of the impact of social and health disparities on children and adolescents can be achieved thus releasing the full potential of the future generation.

## References

- Anakwenze, U., Daniyal. (2013). Mental health and poverty in the inner city. *Health & Social Work, 38*(3), 147-157. doi:10.1093/hsw/hlt013
- Burns, B. J., Costello, E. J., Angold, A., Tweed, D., Stangl, D., Farmer, E. M., & Erkanli, A. (1995). Children's mental health service use across service sectors. *Health Affairs (Project Hope), 14*(3), 147-159.
- Clayton, S., Chin, T., Blackburn, S., & Echeverria, C. (2010). Different setting, different care: Integrating prevention and clinical care in school-based health centers. *American Journal of Public Health, 100*(9), 1592-1596. doi:10.2105/AJPH.2009.186668
- Juszczak, L., Melinkovich, P., & Kaplan, D. (2003). Use of health and mental health services by adolescents across multiple delivery sites. *Journal of Adolescent Health, 32*(6), 108-118. doi:http://dx.doi.org/10.1016/FS1054-139X(03)00073-9
- Kisker, E. E., & Brown, R. S. (1996). Do school-based health centers improve adolescents' access to health care, health status, and risk-taking behavior? *Journal of Adolescent Health, 18*(5), 335-343. doi:DOI: 10.1016/1054-139X(95)00236-L
- Leaf, P. J., Alegria, M., Cohen, P., Goodman, S. H., Horwitz, S. M., Hoven, C. W., . . . Regier, D. A. (1996). Mental health service use in the community and schools: Results from the four-community MECA study. methods for the epidemiology of child and adolescent mental disorders study. *Journal of the American Academy of Child and Adolescent Psychiatry, 35*(7), 889-897.

Lofink, H., Kuebler, J., Juszczak, L., Schlitt, J., Even, M., Rosenberg, J., & White, I. (2013).

*2010-2011 school-based health alliance census report.* (). Washington, D.C.: School-Based Health Alliance.

Merikangas, K. R., He, J. P., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., . . .

Swendsen, J. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: Results from the national comorbidity survey replication--adolescent supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, 49(10), 980-989.

doi:10.1016/j.jaac.2010.05.017

NHS Centre for Reviews and Dissemination. (2009). *Systematic reviews CRD's guidance for undertaking reviews in health care* (3rd ed.). Layerthorpe, York: Centre for Reviews and Dissemination, University of York.

Noblit, G. W., & Hare, R. W. (1988). *Meta-ethnography: Synthesizing qualitative studies.*

Newbury Park, CA: SAGE Publishers, Inc.

Oliff, P., Mai, C., & Leachman, M. (2012). *New school year brings more cuts in state funding for schools.* (). Washington D.C: Center on Budget and Policy Priorities.

Richardson, J. W., & Wright, T. D. (2010). Editor's choice. advancing school-based health care policy and practice. *American Journal of Public Health*, 100(9), 1561-1561.

doi:10.2105/AJPH.2010.195727

Walker, S. C., Kerns, S. E., Lyon, A. R., Bruns, E. J., & Cosgrove, T. J. (2010). Impact of school-based health center use on academic outcomes. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, 46(3), 251-257.

doi:10.1016/j.jadohealth.2009.07.002



## **Appendix A**

Proposal for Paper 3

### Utilization of Mental Health Services in School Based Health Centers in Connecticut

Each decade, the Healthy People goals provide a framework for public health priorities and actions aimed at improving the quality of health of all Americans. One of the four overarching goals outlined in Healthy People 2020 is creation of physical and social environments that promote good health for all. The environments into which people are born and spend their day to day life play an important role in their health outcomes and are often responsible for disparities in health (Chapman, 2010). To achieve the goal of optimal health for all, targeting the multiple determinants of health that contribute to health disparities is necessary. A collaboration among a multitude of agencies that are not only responsible for health but also education, transportation, food, agricultural, housing and social services would most likely be effective in meeting this goal (U.S. Department of Health and Human Services, 2013).

School based health centers (SBHC) are an example of successful collaboration between health and education services to ensure that physical and mental health care needs of children and adolescents are met in their environments. Despite their success in providing comprehensive medical and mental health care, funding for SBHCs has been unstable and dependent on grants and private funding (Gustafson, 2005). For the first time, under the Affordable Care Act, funding has been provided to expand and improve services at existing SBHCs (U.S. Department of Health and Human Services, 2011). Continued funding will likely be tied to quality indicators that are measurable and reflect quality of services provided.

In Connecticut, systems to collect data required by funding entities are currently being developed. The purpose of this study is to obtain baseline data on the provision of mental health services by SBHCs in Connecticut so that areas reflecting the strengths and weakness of the services can be identified. Knowledge gained from this study will be used to contribute to the development of a new database designed to accurately capture physical and mental health

services, thus ensuring that SBHCs in Connecticut are well positioned to attain and maintain funding under the Affordable Care Act.

Nationally there are over 2000 SBHCs and almost 69% are located in schools identified as economically disadvantaged serving low income students (Lofink et al., 2013). Health care providers in these settings are aware of the role poverty and inadequate access play in the health outcomes of these children and adolescents. They therefore maintain partnerships with public health, primary care, mental health and educational agencies, all of who have a vested interest in keeping children healthy. The formation of such partnerships means they are well positioned to address the health disparities and inequities faced by these children and adolescents. Research has shown that children who utilize SBHCs, have reduced absenteeism, improved chronic disease management and better access to medical and mental healthcare (Geierstanger, Amaral, Mansour, & Walters, 2004; Wade et al., 2008a; Wang, Zhong, & Wheeler, 2005).

Within the goals of Healthy People 2020, access to mental health has been determined as a major priority area since mental disorders are the most common causes of disability (U.S. Department of Health and Human Services, 2013). Among children and adolescents under the age of 18 years, 1 in 5 need services for mental, emotional or behavioral issues, and of these only 1 in 5 actually receive services (Knopf, Park, & Mulye, 2008). Children in low income, ethnic and racial minority groups are especially vulnerable to mental health disorders and are less likely to have adequate access to mental health services compared to their white counterparts (Alegria, Vallas, & Pumariega, 2010).

Children from low income families are also more likely to live in communities where they witness violence, substance abuse and decaying neighborhoods making them vulnerable to emotional and behavioral issues (Adelman & Taylor, 2006). In contrast to children living in middle or upper income families, the adults in their lives may be less available to offer a buffer due to ongoing stressors in their own lives such as unemployment, insecure housing, noise

pollution and a lack of resources (Williams Shanks & Robinson, 2013). Unmet mental health needs of children are a serious public health concern. Unresolved mental health issues contribute to failure of completion of high school, which in turn leads to a lifetime of lost income and increased contact with social services and the criminal justice system (Christle, Jolivet, & Nelson, 2007; Homlong, Rosvold, & Haavet, 2013). According to some estimates almost 65 to 70% of youth in the juvenile justice system have mental health issues (Shufelt & Coccozza, 2006).

For children with limited resources, mental health services that are easily accessible to them and their family are essential. Schools are usually located within the neighborhood and are easily accessible to the child and their family and offer the best potential location for such services. Most SBHCs are located within schools and provide comprehensive medical and mental health services (Lofink et al., 2013). The presence of SBHCs can be influential in meeting the physical and mental health needs of children and their families and providing the support they need to achieve their best potential. Support of resources that allow children and adolescents who face adverse circumstances, achieve a better quality of life is essential to make progress towards the goals outlined in Healthy People 2014.

### **Philosophical and Theoretical Foundations**

#### **Philosophical Foundations**

Philosophically, providing medical and mental healthcare within schools and SBHCs aligns with pragmatism. The core of pragmatism is the generation of knowledge for practical use. Theoretically, pragmatism maintains that truth is relative to and related to the practicality and the usefulness of a solution. Thus truth is only true when it is useful (Polifroni & Welch, 1999). Pluralism as a component of pragmatism maintains that there are many ways of approaching truths about the world. Pragmatism is receptive to other sources of knowledge and allows a researcher to approach each problem with the best method and pull together many

ideas and use “what works” while valuing both objective and subjective knowledge (Creswell & Plano Clark, 2011).

The core mission of SBHCs is provision of comprehensive, high quality, accessible healthcare within a school setting where children and adolescents spend a majority of their waking hours. The concept of healthcare delivery within a school aligns with pragmatism. It uses the practicality of setting healthcare delivery within a school to provide access to healthcare to children and adolescents who may otherwise have limited or no access.

### **Theoretical Framework**

An ecobiodevelopmental (EBD) framework demonstrating the complex relationships between the environment and adversities in childhood on long term physical and mental health outcomes will guide this study (Shonkoff, Garner, Committee on Psychosocial Aspects of Child and Family Health, Committee on Early Childhood, Adoption, and Dependent Care, & Section on Developmental and Behavioral Pediatrics, 2012). Children living in low socioeconomic areas are often exposed to frequent or prolonged stressors such as poverty, violence, substance abuse and decaying neighborhoods (Price, Khubchandani, McKinney, & Braun, 2013). Should these stressors not be buffered by the presence of supportive adults in their lives, they may have lasting physiological consequences due to prolonged activation of the stress response. Prolonged activation of the stress response is the most dangerous form of stress and results in toxic stress which may have long term effects (Middlebrooks, J.S., & Audage, N.C., 2008). It is hypothesized that toxic stress can disrupt brain and other organ and metabolic development during childhood, resulting not only in learning and behavior impairments but also in stress related mental and physical ailments (Shonkoff et al., 2012). Such disruptions can impact life experiences, genetic variations, lifestyle choices and modifications of epigenetics in childhood and through the lifetime, thus setting patterns of life long behavior and physiological reactions (Williams Shanks & Robinson, 2013).

The EBD framework (Figure 1) provides a context for health promotion and disease prevention in children who experience adverse events which result in health and educational disparities across their life span and generations (Shonkoff et al., 2012). The multiple domains within the framework address the interaction of ecology and biology in childhood resulting in lifelong wellbeing outcomes and provide myriad opportunities for health and education agencies to intervene to ensure children attain optimal health.

To mitigate the interactions of environmental influences and genetic predisposition which affect physical and mental health outcomes it is necessary to ensure that children have foundations for healthy development. One essential component of the framework is stable, responsive relationships which are nurturing, supportive and protective. The strength of these relationships enable children to grow physically and emotionally without fear and learn skills for adapting and responding to stress. A safe, supportive environment which includes healthy and appropriate nutrition allows them to attain their optimal health. Supporting caregiver and community capacities in the neighborhood through social resources such as early childhood programs, volunteer organizations and parent workplaces enhances the capabilities of caregivers to provide optimum care for children. Public and private policies and programs such as primary health care, child care and early education that affect systems such as early intervention, public health and economic stability offer caregivers stronger foundations across multiple settings to provide the ideal care to children.

The EBD framework lends itself well to the provision of mental health care within a SBHC and has been adapted for this study (Figure 2). Programs such as SBHCs can provide timely interventions to children and adolescents by delivering medical and mental health services within their environments. The easy access and stability of services in a familiar setting, allows students to form trusting relationships with clinical staff in a safe supportive environment where they can receive appropriate and comprehensive health services. Collaboration of SBHC staff with community health clinics, public health agencies, schools, school nurses and early

intervention programs enhances resources available to children and their families.

Strengthening resources within their communities allows caregivers to provide optimal care to their children. This in turn strengthens the foundation of healthy development and allows children to achieve their best potential. Thus, SBHCs are well suited to address the mental health needs of children living in areas where they are vulnerable to the adversities around them.

### **Literature Review**

In keeping within the EBD framework this review will focus on the policies and programs that led to the establishment of SBHCs and access and utilization of mental health services in elementary and high schools. Evidence of effectiveness of resources within SBHCs, both at the individual and community level, in meeting mental health needs of children and adolescents will be reviewed. To build foundations for healthy development and alleviate the influences of the environment and genetic predispositions, verification of existing resources is essential.

### **Establishment of SBHCs**

The first SBHCs were established in the late 1960s and early 1970s in Cambridge, Massachusetts followed by Dallas, Texas and Minneapolis-St. Paul, Minnesota (Gustafson, 2005). The movement took off in earnest in the 1980s due to concerns about the health of adolescents, particularly pregnancy and associated psychological and educational risks (Dryfoos, 1988). In 1991 the US Office of Technology Assessment recommended that SBHCs be expanded as part of the US Public Health Service's Healthy People 2000 program (Flaherty, Weist, & Warner, 1996). It was during this time that the number of SBHCs primarily at middle and high schools saw the largest expansion (Brindis & Sanghvi, 1997). Since the late 1990s there has been a rise in the number of SBHCs at the elementary school level (Johnson & Hutcherson, 2006). As a result of the increased numbers of SBHCs, the National Assembly of School Based Health Care (NASBHC), now known as the School Based Health Alliance, was established in 1995 and serves as a national voice for SBHCs. Connecticut established the first

SBHC more than 30 years ago and currently there are 83 SBHCs in 22 communities (Connecticut association of school based health centers.2012).

Research has shown that when students have access to SBHCs, there is a positive impact on their medical and mental health (Guo et al., 2005; Wade et al., 2008b; Wade & Guo, 2010). Mental health services are an important component of SBHCs and nationally over 70% of the SBHCs have a mental health provider on staff (Lofink et al., 2013). Several studies have addressed mental health services provided at SBHCs and assessed a varied range of variables in measuring the success of these programs. These studies will be reviewed

### **Access and utilization of mental health services in elementary SBHCs**

In an evaluation of the impact of SBHCs on mental health services, four school districts with SBHCs were compared to two school districts without SBHCs over three years (Guo, Wade, & Keller, 2008a). The sample in this study included 39 students in non-SBHC districts, 45 students in SBHC districts who did not use SBHCs and 25 students in SBHC districts who used SBHCs. The mean age of the sample was 10.5 years with 30.3% female and 57.8% African American. This longitudinal quasi-experimental repeated measure time-series study analyzed the changes in student health and Medicaid costs over the 3 years. Results showed that the number of students who used mental health services in the SBHCs increased by 5.6% for the urban schools and 5.9% for the rural school. Comparatively, in schools without SBHCs, the use of mental health services went up by 2.6% for the urban school and 0.2% for the rural school. Furthermore, the cost analysis showed that students who attended schools with SBHCs had lower mental health services costs than students without access to SBHCs (Guo, Wade, & Keller, 2008b). The findings indicated that when SBHCs were available mental health service use increased with an overall cost savings for service utilization.

Likewise, a descriptive analysis of enrollment and usage of medical and mental services of 4426 students over 3 years in 4 urban and 4 rural newly implemented SBHCs was conducted by Wade et al., 2008. Ages of the students ranged from 5 years to 15 years. The researchers



noted that though enrollment was higher in the urban SBHCs, the rate of utilization was higher in the rural SBHCs. Students with either public insurance or no insurance utilized the SBHCs more often than students who had private insurance. Over the three years, the overall number of visits in all SBHCs increased with the largest increase for mental health visits (Wade et al., 2008c).

A retrospective analysis of data on all clinic visits in an elementary SBHC over 5 years was conducted (Johnson & Hutcherson, 2006). The students ranged in age from 2 weeks to 16 years and the total clinic users ranged from 720 to 844 over the 5 years. Results showed that the utilization of mental health services was higher than medical or dental services. Moreover, students who were diagnosed as having emotional issues had a higher number of visits.

### **Access and utilization of mental health services in high SBHCs**

A retrospective cohort study by Juszczak, Melinkovich and Kaplan (2003) assessed the role of SBHCs in provision of health and mental health services to adolescents who lived in communities with both SBHCs and CHNs (community health center networks). In this study, a sample of 451 students who made 3469 visits over three years was divided into three groups. The first group consisted of students attending a school with a SBHC and enrolled in a CHN. The second group, the control group, consisted of students who were enrolled in the CHN and attended a school that did not have a SBHC. The third group consisted of students who used services at both the CHN and SBHC. Findings revealed that students in the third group had the highest number of visits (5.3 visits per year). Overall, mental health visits accounted for 34% of visits to SBHCs and 3% of visits to CHNs. Males were 45 times more likely to have been seen for a mental health visit at a SBHC than a CHN. Furthermore, though mental health services were available at both the SBHC and CHN, adolescents were 21 times more likely to use them in a SBHC rather than a CHN (Juszczak, Melinkovich, & Kaplan, 2003).

A similar retrospective analysis of visit data in three high schools over a four year period was conducted in Denver (Anglin, Naylor, & Kaplan, 1996). Data analysis on 27,886

visits made by 3818 adolescents revealed that the most common diagnosis was emotional problems. Of all the adolescents seen at the SBHC, 25% sought mental health services and had an average of 5.8 visits per year.

An analogous retrospective cohort study published in 1998 compared utilization of medical and mental health services over three years among adolescents who had access to a SBHC and those who did not (Kaplan, Calonge, Guernsey, & Hanrahan, 1998). The 342 adolescents included in the study made 3394 visits and adolescents who had access to SBHCs were 10 times more likely to make a visit for a mental health or substance abuse issue than those who didn't.

Likewise, in a retrospective study, Wolk and Kaplan (1993) compared utilization of services in three high SBHCs. Seventy three students who had 15 or more visits per year were compared to 83 who had an average of three visits per year. Descriptive statistical analysis noted that 90% of frequent users used mental health services in the SBHC as opposed to less than 20% in the comparison group (Wolk & Kaplan, 1993).

In California, researchers surveyed 4640 students in grade 9-11 using the California Healthy Kids Survey (CHKS) to identify independent predictors of SBHC use and examine the mental health characteristics of students who used the SBHC compared to those who did not (Amaral, Geierstanger, Soleimanpour, & Brindis, 2011a). The CHKS is a cross-sectional youth health risk and behavioral assessment questionnaire required to be administered biannually to students in high schools that receive Safe Drug Free Schools and Tobacco Use Prevention and Education Funding (Amaral, Geierstanger, Soleimanpour, & Brindis, 2011b). Twenty four additional questions measuring the physical and mental health status, SBHC use, insurance status and health care utilization were included in the survey. Statistical analysis such as chi square tests of significance and multivariate logistic regression indicated that students who reported feeling nervous or stressed, depressed or sad and difficulty with sleep, been through difficult life events were more likely to use the SBHC services. Students who had considered

suicide in the past year were 52% more likely to have sought SBHC services and were 112% more likely to have used SBHC mental health services. Additionally, students who had either no insurance or government insurance were 64% more likely to seek mental health services in a SBHC. Of this sample of students, a total of 28% needed some form of mental health care and were more likely than nonusers to have obtained those services.

In Canada where access to universal healthcare includes mental health services, a secondary analysis of survey data from 1629 students in three high school SBHCs was conducted in to determine if students who identified themselves as needing mental health support used the services available at the SBHCs (Szumilas, Kutcher, LeBlanc, & Langille, 2010). Statistical analysis using chi-square tests and multivariate logistic regression revealed that almost half the students surveyed reported the need for mental health services and 1 in 6 made a visit to the SBHCs for that purpose. These numbers were significant for access to care since the wait for mental health services in Canada can be several months with average waits in Ontario being 5.5 months (Kutcher, Hampton, & Wilson, 2010).

Unresolved mental health issues also have an impact on the academic outcomes of students as demonstrated in a longitudinal study conducted over five semesters for 9<sup>th</sup> SBHC users and non-users in 13 high schools in Seattle (Walker, Kerns, Lyon, Bruns, & Cosgrove, 2010). The examination of the impact of SBHC use on academic outcomes of 2306 students who used the SBHC for medical and mental health issues using latent variable growth curve modeling showed that the most common reasons for a mental health visit were: academic difficulties, family problems, depression and deferred diagnosis. Results indicated that those who used the SBHC for mental health services had increases in GPA. The implications of this study were that addressing mental health issues in a timely manner translated to academic success for the students.

This review of literature indicates that availability of mental health services within SBHCs increased access and utilization of services at both the elementary, middle and high schools. It

has also indicated that SBHCs were able to provide access to students who would have otherwise gone without care.

In Connecticut, though demographic and visit data have been collected, there has been no analysis of these data to understand utilization patterns of mental health services in SBHCs. Research in this area is essential to describe the utilization patterns of health and mental health services in SBHCs. An analysis of available data is the first step in understanding usage patterns. This initial descriptive study may contribute to refinement of data collection systems. Further studies of mental health services in SBHCs may lead to improved and sustainable systems of mental health care for underserved children and youth in Connecticut.

### **Purpose**

Though Connecticut has had SBHCs in place for over 30 years, there have been no studies examining the use of mental health services in these clinics. The purpose of this research study is to provide a quantitative summary of the utilization patterns of mental health services at SBHCs in New Haven for the 2007-2008 and 2008-2009 school years. This community was chosen because the city has one of the largest and longest running SBHC programs in the state. The findings from this community could potentially serve as a template for research in other SBHC communities in the state. The following research questions will be investigated:

1. How does the frequency of student visits coded with mental health diagnosis vary by age in SBHCs in an urban community? Each age in years will be analyzed individually.
  2. Does the pattern of student visits for mental health diagnoses relative to age differ by gender, ethnicity, race or insurance status?
  3. What is the distribution of dispositions provided in SBHC visits for specific mental health diagnostic codes and do the distributions of these dispositions vary with age?
- Dispositions for visits include being sent back to class, sent home, sent to outside provider, sent to the emergency room.

## **Methods**

### **Design**

This descriptive study will be a secondary analysis of data collected by clinicians in SBHCs in New Haven funded by the Connecticut Department of Public Health (DPH) for the school years 2007-2008 and 2008-2009. The data collection is part of a contractual obligation between each community with SBHCs and DPH which oversees funding of the sites. This dataset contains the most recently available information collected with the software program, Clinical Fusion®. Until recently, Clinical Fusion®, a clinical management information system was used by SBHCs in Connecticut for data collection and billing but as of July 2012 is no longer available and a new system is presently being developed in Connecticut (Clinical fusion, 2012).

### **Sample**

The population to be studied will include all the visits made by the students to SBHCs in New Haven for mental health visits during the 2007-2008 and 2008-2009 school years as recorded in the Clinical Fusion® database. Since all visits will have to be tallied to determine the percentage of mental health visits, the sample to be studied will include all visits made by students in New Haven SBHCs during the 2007-2008 and 2008-2009 school years. The ages of students will range from ages 3 years to 20 years in the elementary, middle and high SBHCs. New Haven has 46 public schools, 31 of which are elementary or middle schools and 9 high schools. The database for this research includes visits from 70 SBHCs in 22 Connecticut communities, 9 of which are from New Haven. Of the 9 SBHCs in New Haven, 2 are in high schools and the remaining 7 are in elementary and middle schools.

### **Setting**

The SBHCs are located in elementary, middle, preK through 8<sup>th</sup> grade and high schools throughout the city. Though the city has several high schools, the 3 high schools with the largest student population have SBHCs. Two of these SBHCs are funded by DPH and included

in this study. All the SBHCs are staffed with a healthcare provider and a mental health provider providing a full range of physical and mental healthcare. The health providers are either nurse practitioners or physician's assistants and all the mental health providers are licensed therapists. Mental health providers provide individual and group therapy to the students in this setting. This includes cognitive behavioral therapy and trauma based therapy among others. The diagnosis of mental health disorder is made according to DSM IV guidelines (American Psychiatric Association, 2000)

Only students that attend the school and have written parental permission can receive services. All the SBHCs are open during the school year with the exception of one SBHC located in a preK through 8<sup>th</sup> grade school and one located in a high school that are both open for 12 months. Funding for SBHCs, which is over \$12 million, is primarily provided by the state of Connecticut with less than \$400,000 from Title V Maternal and Child Health Block Grant (J. White-Frese', personal communication, March 17, 2014).

### **Data Collection Instruments**

Data for all visits were collected using health and mental health encounter forms which were required to be filled by all providers in SBHCs for each visit (Appendix A). The individual visits were then entered into the Clinical Fusion® database by the clerical staff for billing and data collection purposes. At the end of the school year, all the data from each community with SBHCs were aggregated and sent to DPH. The staff at DPH in turn combined data from all the communities for end of year reports to the state of Connecticut for continued funding of the SBHCs.

Data collected with this software program include demographic information such as age, sex, race, grade at time of visit and location of SBHC. It also includes insurance status, procedure codes and diagnosis codes as specified by ICD-9-CM (International Classification of Diseases, Ninth Revision, Clinical Modification) and DSM IV. Furthermore, the outcomes of each visit are documented to reflect whether the student went back to class or needed

resources beyond what the SBHC could offer such as referrals to outside providers, school staff or the emergency room.

### **Data Collection Procedure**

The data were obtained by the director of Connecticut Association of SBHCs from DPH. The University Of Connecticut School Of Nursing was contracted to construct a dataset to be used for research to support and strengthen the SBHC program. Permission to conduct analysis of the data was obtained from the Connecticut Association of SBHCs (Appendix B). Approval to conduct this research will be sought from the University of Connecticut Institutional Review Board (Appendix C). A review of study procedures that will protect student identities and maintain confidentiality of personal health information will be proposed with a request that the study be exempt from continuing oversight by the university's Institutional Review Board.

### **Human Subjects**

The database was substantially de-identified by the Department of Public Health before University of Connecticut School of Nursing entered into contract with the Connecticut Association of School Based Health Centers. Prior to conducting this research study, the staff from the Center for Nursing Scholarship within the School of Nursing will create a version of the database in which all patient birthdates will be replaced with age in years, clinic visit dates will be omitted and school identifiers will be removed. These modifications will be in compliance with HIPAA standards for de-identification of protected health information.

### **Data Analysis**

Research Question 1 concerns assessment of variation across ages with respect to the frequency of student visits to SBHCs for mental health diagnoses. Frequency distributions of mental health and non-mental health visits for each age in years will be tabulated and proportions will be calculated. These descriptive statistics will be determined both for "all" mental health diagnostic codes, in aggregate, and for "individual" groups of codes that represent major types of mental health issues. Cross-tabulations will be performed to investigate variation

in counts and proportions between the ages. Graphs will be used to display patterns in any variation relative to age. The Pearson chi-square test will be applied to evaluate statistical significance of differences in proportions across the ages and the Armitage-Mantel test will be used to assess evidence of linear trends in those proportions.

Research Question 2 asks whether the pattern of mental health diagnoses relative to age differs with gender, ethnicity, race, or insurance status. To investigate these possibilities, the cross-tabulations of visit diagnostic codes by age that were prepared for Question 1 will be further stratified by levels of the gender, ethnicity, race, and insurance status variables. Graphs will be used to display patterns in the percentage of mental health visits relative to age between males and females, between students of Hispanic and non-Hispanic ethnicity, between whites and non-whites, and between students with public as opposed to private health insurance. Logistic regression analyses will be performed to determine whether any of these variables are associated with a statistically significant difference in the age-related patterns.

Research Question 3 considers whether the outcomes of mental health visits in the SBHC setting varies with age. Among the subset of SBHC visits attributed to mental health diagnoses, frequencies of major categories of disposition will be assessed. Variation in the proportion of visits with each major type of disposition will be investigated using an analytic strategy based on cross-tabulation, graphical display, and statistical testing, as described for Questions 1 and 2. Logistic regression will be applied to assess whether age-related patterns in the proportion of visits occurring in each category of disposition differ by gender, ethnicity, race, or insurance status.

All data analyses will be conducted using SPSS statistical software.

### **Timeline**

Since this study is a secondary analysis data will be available for analysis as soon as IRB approval is attained. The analysis of data is expected to take 8-12 weeks and the write up of the results will take an additional 4 weeks.



**Budget**

Since the data has already been collected the only expense anticipated is \$150.00 for the purchase of the statistical program for data analysis.

**Discussion**

This study will seek to provide a descriptive understanding of the utilization of mental health services over two years in an inner city with SBHCs in elementary, middle and high schools. The statistical analysis will reveal the frequencies of mental health visits, patterns and correlations across ages, gender, visit diagnosis, ethnicity, race and insurance status. Additionally, it will also provide outcomes of the visits, and how they vary across age and diagnostic codes. The findings from this research will reveal the usefulness of the available database in capturing the utilization of mental health services across age groups in SBHCs in one community in Connecticut. Mental health services in SBHCs are essential but often difficult to quantify. By conducting this analysis the strengths and weakness of the current database will be highlighted. Furthermore, the patterns of utilization of mental health care may provide useful information for refining staffing needs and planning mental health services in a SBHC more effectively.

These findings will be shared with the director of the Connecticut Association of SBHCs who is leading efforts to establish a uniform and useful data collection statewide. Creation of a statewide system is essential as it may have implications for collaboration across communities for future research and development of programs that strengthen SBHCs. The ability to provide evidence for the success of SBHCs across the state is crucial to ensure sustainability, continued funding and future growth of the program.

This research will be limited since data from SBHCs that are not funded by DPH in New Haven will not be included. Moreover, the findings in New Haven may not be representative of other urban communities. New Haven has a relatively rich saturation of mental health services for children and adolescents through a large hospital with campuses throughout the city, two

community health centers, two universities and several private entities. The data to be used for this research also precedes the Affordable Care Act and increased health insurance coverage for children and adolescents so may not accurately reflect current mental health service usage patterns.

## References

- Adelman, H. S., & Taylor, L. (2006). Mental health in schools and public health. *Public Health Reports (Washington, D.C.: 1974)*, 121(3), 294-298.
- Alegria, M., Vallas, M., & Pumariega, A. J. (2010). Racial and ethnic disparities in pediatric mental health. *Child and Adolescent Psychiatric Clinics of North America*, 19(4), 759-774. doi:10.1016/j.chc.2010.07.001; 10.1016/j.chc.2010.07.001
- Amaral, G., Geierstanger, S., Soleimanpour, S., & Brindis, C. (2011a). Mental health characteristics and health-seeking behaviors of adolescent school-based health center users and nonusers. *The Journal of School Health*, 81(3), 138-145. doi:10.1111/j.1746-1561.2010.00572.x; 10.1111/j.1746-1561.2010.00572.x
- Amaral, G., Geierstanger, S., Soleimanpour, S., & Brindis, C. (2011b). Mental health characteristics and health-seeking behaviors of adolescent school-based health center users and nonusers. *Journal of School Health*, 81(3), 138-145. doi:10.1111/j.1746-1561.2010.00572.x
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed ed.) doi:10.1176/appi.books.9780890423349
- Anglin, T. M., Naylor, K. E., & Kaplan, D. W. (1996). Comprehensive school-based health care: High school students' use of medical, mental health, and substance abuse services. *Pediatrics*, 97(3), 318-330.
- Brindis, C. D., & Sanghvi, R. V. (1997). School-based health clinics: Remaining viable in a changing health care delivery system. *Annual Review of Public Health*, 18, 567-587. doi:10.1146/annurev.publhealth.18.1.567

Chapman, A. R. (2010). The social determinants of health, health equity, and human rights.

*Health and Human Rights*, 12(2), 17-30.

Christle, C. A., Jolivette, K., & Nelson, C. M. (2007). School characteristics related to high

school dropout rates. *Remedial & Special Education*, 28(6), 325-339. doi:doi:

10.1177/07419325070280060201

Clinical fusion. (2012). Primary healthcare online. clinical management information system for

primary care in school and community based programs. Retrieved, 2013, Retrieved from

<http://www.clinicalfusion.com/>

Connecticut association of school based health centers. (2012). Retrieved, 2012, Retrieved

from <http://www.ctschoolhealth.org/AboutCASBHC/BackgroundHistory.asp>

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods*

*research*. (2nd ed.). Thousand Oaks, CA 91320: Sage Publications, Inc.

Dryfoos, J. G. (1988). School-based health clinics: Three years of experience. *Family Planning*

*Perspectives*, 20(4), 193-200.

Flaherty, L. T., Weist, M. D., & Warner, B. S. (1996). School-based mental health services in the

united states: History, current models and needs. *Community Mental Health Journal*, 32(4),

341-352.

Geierstanger, S. P., Amaral, G., Mansour, M., & Walters, S. R. (2004). School-based health

centers and academic performance: Research, challenges, and recommendations. *Journal*

*of School Health*, 74(9), 347-352. doi:10.1111/j.1746-1561.2004.tb06627.x

- Guo, J. J., Jang, R., Keller, K. N., McCracken, A. L., Pan, W., & Cluxton, R. J. (2005). Impact of school-based health centers on children with asthma. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, 37(4), 266-274.  
doi:10.1016/j.jadohealth.2004.09.006
- Guo, J. J., Wade, T. J., & Keller, K. N. (2008a). Impact of school-based health centers on students with mental health problems. *Public Health Reports*, 123(6), 768-780.
- Guo, J. J., Wade, T. J., & Keller, K. N. (2008b). Impact of school-based health centers on students with mental health problems. *Public Health Reports*, 123(6), 768-780.
- Gustafson, E. M. (2005). History and overview of school-based health centers in the US. *Nursing Clinics of North America*, 40(4), 595-606.
- Homlong, L., Rosvold, E. O., & Haavet, O. R. (2013). Can use of healthcare services among 15-16-year-olds predict an increased level of high school dropout? A longitudinal community study. *BMJ Open*, 3(9), e003125-2013-003125. doi:10.1136/bmjopen-2013-003125; 10.1136/bmjopen-2013-003125
- Johnson, V., & Hutcherson, V. (2006). A study of the utilization patterns of an elementary school-based health clinic over a 5-year period. *Journal of School Health*, 76(7), 373-378.
- Juszczak, L., Melinkovich, P., & Kaplan, D. (2003). Use of health and mental health services by adolescents across multiple delivery sites. *Journal of Adolescent Health*, 32(6), 108-118.  
doi:http://dx.doi.org/10.1016/S1054-139X(03)00073-9
- Kaplan, D. W., Calonge, B. N., Guernsey, B. P., & Hanrahan, M. B. (1998). Managed care and school-based health centers: Use of health services. *Archives of Pediatrics & Adolescent Medicine*, 152(1), 25-33.

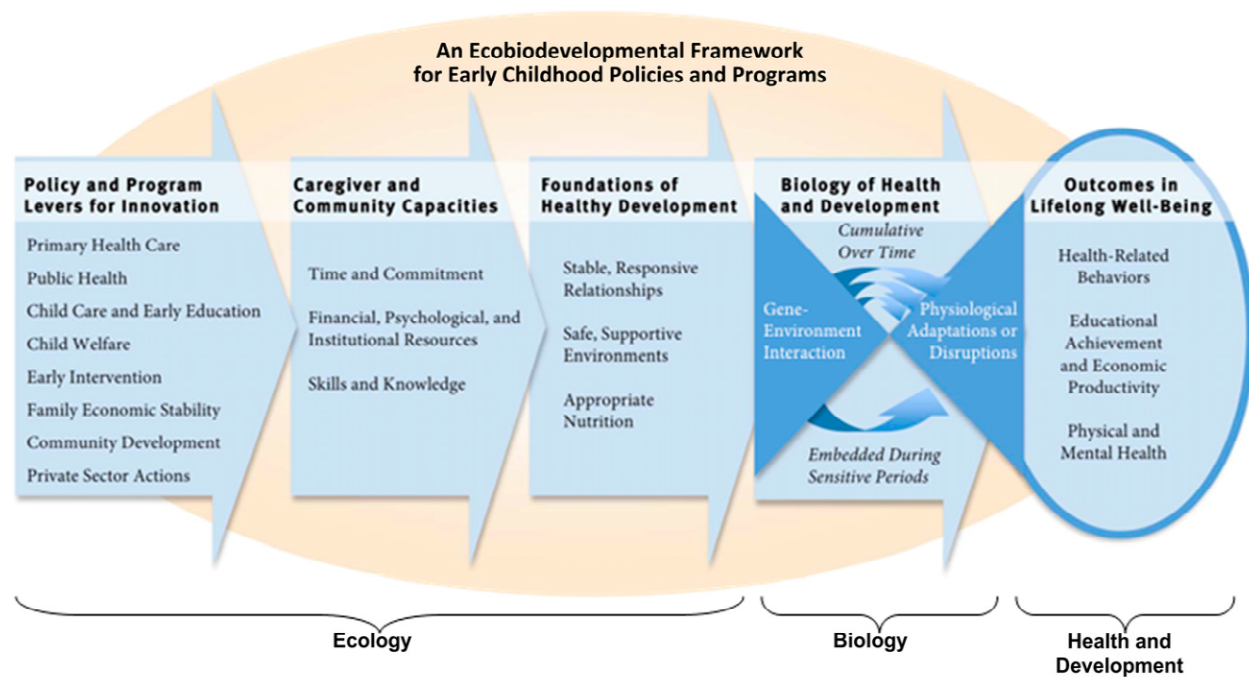
- Knopf, D., Park, M. J., & Mulye, T. P. (2008). *The mental health of adolescents: A national profile*. (). University of California, San Francisco: National Adolescent Health Information Center.
- Kutcher, S., Hampton, M. J., & Wilson, J. (2010). Child and adolescent mental health policy and plans in Canada: An analytical review. *Canadian Journal of Psychiatry*, 55(2), 100-107.
- Lofink, H., Kuebler, J., Juszczak, L., Schlitt, J., Even, M., Rosenberg, J., & White, I. (2013). *2010-2011 school-based health alliance census report*. Washington, D.C.: School-Based Health Alliance.
- Middlebrooks, J.S., & Audage, N.C. (2008). *The effects of childhood stress on health across the lifespan*. (). Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.
- Polifroni, E. C., & Welch, M. (1999). In Polifroni E. C., Welch M. (Eds.), *Perspectives on philosophy of science in nursing. A historical and contemporary anthology*. Philadelphia, PA: Lippincott.
- Price, J. H., Khubchandani, J., McKinney, M., & Braun, R. (2013). Racial/ethnic disparities in chronic diseases of youths and access to health care in the United States. *BioMed Research International*, 2013, 787616. doi:10.1155/2013/787616; 10.1155/2013/787616
- Shonkoff, J. P., Garner, A. S., Committee on Psychosocial Aspects of Child and Family Health, Committee on Early Childhood, Adoption, and Dependent Care, & Section on Developmental and Behavioral Pediatrics. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129(1), e232-46. doi:10.1542/peds.2011-2663; 10.1542/peds.2011-2663

- Shufelt, J. L., & Coccozza, J. J. (2006). *Youth with mental health disorders in the juvenile justice system: Results for a multi-state, multi-system prevalence study*. (policy brief). Delmar, NY: National center for mental health and juvenile justice.
- Szumilas, M., Kutcher, S., LeBlanc, J. C., & Langille, D. B. (2010). Use of school-based health centres for mental health support in cape breton, nova scotia. *Canadian Journal of Psychiatry*, 55(5), 319-328.
- U.S. Department of Health and Human Services. (2011). The affordable care act and health centers. Retrieved, 2013, Retrieved from <http://bphc.hrsa.gov/about/healthcenterfactsheet.pdf>
- U.S. Department of Health and Human Services. (2013). Healthy people 2020. Retrieved, 2013, Retrieved from <http://www.healthypeople.gov/2020/LHI/mentalHealth.aspx>
- Wade, T. J., Mansour, M. E., Guo, J. J., Huentelman, T., Line, K., & Keller, K. N. (2008a). Access and utilization patterns of school-based health centers at urban and rural elementary and middle schools. *Public Health Reports (Washington, D.C.: 1974)*, 123(6), 739-750.
- Wade, T. J., Mansour, M. E., Guo, J. J., Huentelman, T., Line, K., & Keller, K. N. (2008b). Access and utilization patterns of school-based health centers at urban and rural elementary and middle schools. *Public Health Reports*, 123(6), 739-750.
- Wade, T. J., Mansour, M. E., Guo, J. J., Huentelman, T., Line, K., & Keller, K. N. (2008c). Access and utilization patterns of school-based health centers at urban and rural elementary and middle schools. *Public Health Reports*, 123(6), 739-750.

- Wade, T. J., & Guo, J. J. (2010). Linking improvements in health-related quality of life to reductions in medicaid costs among students who use school-based health centers. *American Journal of Public Health, 100*(9), 1611-1616. doi:10.2105/AJPH.2009.185355
- Wang, L. Y., Zhong, Y., & Wheeler, L. (2005). Direct and indirect costs of asthma in school-age children. *Preventing Chronic Disease, 2*(1), A11.
- Williams Shanks, T. R., & Robinson, C. (2013). Assets, economic opportunity and toxic stress: A framework for understanding child and educational outcomes. *Economics of Education Review, 33*, 154-170. doi:http://www.sciencedirect.com/science/journal/02727757
- Wolk, L. I., & Kaplan, D. W. (1993). Frequent school-based clinic utilization: A comparative profile of problems and service needs. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine, 14*(6), 458-463.



Figure 1. An ecobiodevelopmental framework for early childhood policies and programs (Shonkoff et al., 2012).



The diagram illustrates a five-stage process of innovation, organized into three categories at the bottom:

- Ecology**: Includes the first two stages.
  - Policy and Program Levers for Innovation**: SBHCs, Community Health Clinics, Public Health Schools, School Nurses, Early Intervention Funding.
  - Caregiver and Community Capacities**: Full time medical and mental health services in SBHCs, Stability in Funding of SBHCs, Experienced Professional staff.
- Biology**: Includes the third stage.
  - Foundations of Healthy Development**: Trusting Relationships, Safe, Supportive Environments, Appropriate and timely Health services.
- Health and Development**: Includes the final two stages.
  - Biology of Health and Development**: Gene-Environment Interaction, Physiological Adaptations or Disruptions.
  - Outcomes in Lifelong Well-Being**: Health Related Behaviors, Educational Achievement and Economic Productivity, Physical and Mental Health.

Arrows indicate a sequential flow from left to right through all five stages.

## Appendix A

# New Haven Public Schools School-Based Health Care Encounter Form

NEW HAVEN PUBLIC SCHOOLS SCHOOL-BASED HEALTH CARE ENCOUNTER FORM										
DATE:		CHIEF COMPLAINT:				PROVIDER (if not school):				
PATIENT ID#:		CONFIDENTIAL: <input type="checkbox"/> Y <input type="checkbox"/> N (circle one)				PROVIDER NAME:				
PATIENT NAME:										
Office Vis, New	Code	DX	Vaccine(s)	Code	Mfg.	Trauma Conference	Code	DX	Laboratory	Code
1-15 min	99201		Adenovirus	93475		Prep for surgery	99201		Urinalysis	99201
16-30 min	99202		SCB/Tb	93485		Prep for surgery	99202		Finger Stick	99202
31-45 min	99203		Shingles	93495		Education	Code		CLIA Waived Tests	Code
46-60 min	99204		Diphtheria	93510		Education	Code		Glucose	Code
61-90 min	99205		Tb	93520		Education	Code		Fasting Glucose	Code
Office Vis, Est.	Code		DTaP	93700		Education	Code		Glucose strip	Code
1-15 min	99211		DTaP-Boost IPV	93720		Education	Code		Hemoglobin	Code
16-30 min	99212		DTaP-Boost	93730		Education	Code		Hemoglobin	Code
31-45 min	99213		DTaP	93740		Education	Code		Hemoglobin	Code
46-60 min	99214		DTaP-Boost	93750		Education	Code		Hemoglobin	Code
61-90 min	99215		DTaP-Boost	93760		Education	Code		Hemoglobin	Code
91-120 min	99216		DTaP-Boost	93770		Education	Code		Hemoglobin	Code
121-180 min	99217		DTaP-Boost	93780		Education	Code		Hemoglobin	Code
181-240 min	99218		DTaP-Boost	93790		Education	Code		Hemoglobin	Code
241-300 min	99219		DTaP-Boost	93800		Education	Code		Hemoglobin	Code
301-360 min	99220		DTaP-Boost	93810		Education	Code		Hemoglobin	Code
361-420 min	99221		DTaP-Boost	93820		Education	Code		Hemoglobin	Code
421-480 min	99222		DTaP-Boost	93830		Education	Code		Hemoglobin	Code
481-540 min	99223		DTaP-Boost	93840		Education	Code		Hemoglobin	Code
541-600 min	99224		DTaP-Boost	93850		Education	Code		Hemoglobin	Code
601-660 min	99225		DTaP-Boost	93860		Education	Code		Hemoglobin	Code
661-720 min	99226		DTaP-Boost	93870		Education	Code		Hemoglobin	Code
721-780 min	99227		DTaP-Boost	93880		Education	Code		Hemoglobin	Code
781-840 min	99228		DTaP-Boost	93890		Education	Code		Hemoglobin	Code
841-900 min	99229		DTaP-Boost	93900		Education	Code		Hemoglobin	Code
901-960 min	99230		DTaP-Boost	93910		Education	Code		Hemoglobin	Code
961-1020 min	99231		DTaP-Boost	93920		Education	Code		Hemoglobin	Code
1021-1080 min	99232		DTaP-Boost	93930		Education	Code		Hemoglobin	Code
1081-1140 min	99233		DTaP-Boost	93940		Education	Code		Hemoglobin	Code
1141-1200 min	99234		DTaP-Boost	93950		Education	Code		Hemoglobin	Code
1201-1260 min	99235		DTaP-Boost	93960		Education	Code		Hemoglobin	Code
1261-1320 min	99236		DTaP-Boost	93970		Education	Code		Hemoglobin	Code
1321-1380 min	99237		DTaP-Boost	93980		Education	Code		Hemoglobin	Code
1381-1440 min	99238		DTaP-Boost	93990		Education	Code		Hemoglobin	Code
1441-1500 min	99239		DTaP-Boost	94000		Education	Code		Hemoglobin	Code
1501-1560 min	99240		DTaP-Boost	94010		Education	Code		Hemoglobin	Code
1561-1620 min	99241		DTaP-Boost	94020		Education	Code		Hemoglobin	Code
1621-1680 min	99242		DTaP-Boost	94030		Education	Code		Hemoglobin	Code
1681-1740 min	99243		DTaP-Boost	94040		Education	Code		Hemoglobin	Code
1741-1800 min	99244		DTaP-Boost	94050		Education	Code		Hemoglobin	Code
1801-1860 min	99245		DTaP-Boost	94060		Education	Code		Hemoglobin	Code
1861-1920 min	99246		DTaP-Boost	94070		Education	Code		Hemoglobin	Code
1921-1980 min	99247		DTaP-Boost	94080		Education	Code		Hemoglobin	Code
1981-2040 min	99248		DTaP-Boost	94090		Education	Code		Hemoglobin	Code
2041-2100 min	99249		DTaP-Boost	94100		Education	Code		Hemoglobin	Code
2101-2160 min	99250		DTaP-Boost	94110		Education	Code		Hemoglobin	Code
2161-2220 min	99251		DTaP-Boost	94120		Education	Code		Hemoglobin	Code
2221-2280 min	99252		DTaP-Boost	94130		Education	Code		Hemoglobin	Code
2281-2340 min	99253		DTaP-Boost	94140		Education	Code		Hemoglobin	Code
2341-2400 min	99254		DTaP-Boost	94150		Education	Code		Hemoglobin	Code
2401-2460 min	99255		DTaP-Boost	94160		Education	Code		Hemoglobin	Code
2461-2520 min	99256		DTaP-Boost	94170		Education	Code		Hemoglobin	Code
2521-2580 min	99257		DTaP-Boost	94180		Education	Code		Hemoglobin	Code
2581-2640 min	99258		DTaP-Boost	94190		Education	Code		Hemoglobin	Code
2641-2700 min	99259		DTaP-Boost	94200		Education	Code		Hemoglobin	Code
2701-2760 min	99260		DTaP-Boost	94210		Education	Code		Hemoglobin	Code
2761-2820 min	99261		DTaP-Boost	94220		Education	Code		Hemoglobin	Code
2821-2880 min	99262		DTaP-Boost	94230		Education	Code		Hemoglobin	Code
2881-2940 min	99263		DTaP-Boost	94240		Education	Code		Hemoglobin	Code
2941-3000 min	99264		DTaP-Boost	94250		Education	Code		Hemoglobin	Code
3001-3060 min	99265		DTaP-Boost	94260		Education	Code		Hemoglobin	Code
3061-3120 min	99266		DTaP-Boost	94270		Education	Code		Hemoglobin	Code
3121-3180 min	99267		DTaP-Boost	94280		Education	Code		Hemoglobin	Code
3181-3240 min	99268		DTaP-Boost	94290		Education	Code		Hemoglobin	Code
3241-3300 min	99269		DTaP-Boost	94300		Education	Code		Hemoglobin	Code
3301-3360 min	99270		DTaP-Boost	94310		Education	Code		Hemoglobin	Code
3361-3420 min	99271		DTaP-Boost	94320		Education	Code		Hemoglobin	Code
3421-3480 min	99272		DTaP-Boost	94330		Education	Code		Hemoglobin	Code
3481-3540 min	99273		DTaP-Boost	94340		Education	Code		Hemoglobin	Code
3541-3600 min	99274		DTaP-Boost	94350		Education	Code		Hemoglobin	Code
3601-3660 min	99275		DTaP-Boost	94360		Education	Code		Hemoglobin	Code
3661-3720 min	99276		DTaP-Boost	94370		Education	Code		Hemoglobin	Code
3721-3780 min	99277		DTaP-Boost	94380		Education	Code		Hemoglobin	Code
3781-3840 min	99278		DTaP-Boost	94390		Education	Code		Hemoglobin	Code
3841-3900 min	99279		DTaP-Boost	94400		Education	Code		Hemoglobin	Code
3901-3960 min	99280		DTaP-Boost	94410		Education	Code		Hemoglobin	Code
3961-4020 min	99281		DTaP-Boost	94420		Education	Code		Hemoglobin	Code
4021-4080 min	99282		DTaP-Boost	94430		Education	Code		Hemoglobin	Code
4081-4140 min	99283		DTaP-Boost	94440		Education	Code		Hemoglobin	Code
4141-4200 min	99284		DTaP-Boost	94450		Education	Code		Hemoglobin	Code
4201-4260 min	99285		DTaP-Boost	94460		Education	Code		Hemoglobin	Code
4261-4320 min	99286		DTaP-Boost	94470		Education	Code		Hemoglobin	Code
4321-4380 min	99287		DTaP-Boost	94480		Education	Code		Hemoglobin	Code
4381-4440 min	99288		DTaP-Boost	94490		Education	Code		Hemoglobin	Code
4441-4500 min	99289		DTaP-Boost	94500		Education	Code		Hemoglobin	Code
4501-4560 min	99290		DTaP-Boost	94510		Education	Code		Hemoglobin	Code
4561-4620 min	99291		DTaP-Boost	94520		Education	Code		Hemoglobin	Code
4621-4680 min	99292		DTaP-Boost	94530		Education	Code		Hemoglobin	Code
4681-4740 min	99293		DTaP-Boost	94540		Education	Code		Hemoglobin	Code
4741-4800 min	99294		DTaP-Boost	94550		Education	Code		Hemoglobin	Code
4801-4860 min	99295		DTaP-Boost	94560		Education	Code		Hemoglobin	Code
4861-4920 min	99296		DTaP-Boost	94570		Education	Code		Hemoglobin	Code
4921-4980 min	99297		DTaP-Boost	94580		Education	Code		Hemoglobin	Code
4981-5040 min	99298		DTaP-Boost	94590		Education	Code		Hemoglobin	Code
5041-5100 min	99299		DTaP-Boost	94600		Education	Code		Hemoglobin	Code
5101-5160 min	99300		DTaP-Boost	94610		Education	Code		Hemoglobin	Code
5161-5220 min	99301		DTaP-Boost	94620		Education	Code		Hemoglobin	Code
5221-5280 min	99302		DTaP-Boost	94630		Education	Code		Hemoglobin	Code
5281-5340 min	99303		DTaP-Boost	94640		Education	Code		Hemoglobin	Code
5341-5400 min	99304		DTaP-Boost	94650		Education	Code		Hemoglobin	Code
5401-5460 min	99305		DTaP-Boost	94660		Education	Code		Hemoglobin	Code
5461-5520 min	99306		DTaP-Boost	94670		Education	Code		Hemoglobin	Code
5521-5580 min	99307		DTaP-Boost	94680		Education	Code		Hemoglobin	Code
5581-5640 min	99308		DTaP-Boost	94690		Education	Code		Hemoglobin	Code
5641-5700 min	99309		DTaP-Boost	94700		Education	Code		Hemoglobin	Code
5701-5760 min	99310		DTaP-Boost	94710		Education	Code		Hemoglobin	Code
5761-5820 min	99311		DTaP-Boost	94720		Education	Code		Hemoglobin	Code
5821-5880 min	99312		DTaP-Boost	94730		Education	Code		Hemoglobin	Code
5881-5940 min	99313		DTaP-Boost	94740		Education	Code		Hemoglobin	Code
5941-6000 min	99314		DTaP-Boost	94750		Education	Code		Hemoglobin	Code
6001-6060 min	99315		DTaP-Boost	94760		Education	Code		Hemoglobin	Code
6061-6120 min	99316		DTaP-Boost	94770		Education	Code		Hemoglobin	Code
6121-6180 min	99317		DTaP-Boost	94780		Education	Code		Hemoglobin	Code
6181-6240 min	99318		DTaP-Boost	94790		Education	Code		Hemoglobin	Code
6241-6300 min	99319		DTaP-Boost	94800		Education	Code		Hemoglobin	Code
6301-6360 min	99320		DTaP-Boost	94810		Education	Code		Hemoglobin	Code
6361-6420 min	99321		DTaP-Boost	94820		Education	Code		Hemoglobin	Code
6421-6480 min	99322		DTaP-Boost	94830		Education	Code		Hemoglobin	Code
6481-6540 min	99323		DTaP-Boost	94840		Education	Code		Hemoglobin	Code
6541-6600 min	99324		DTaP-Boost	94850		Education	Code		Hemoglobin	Code

## **Appendix B**

Permission to conduct research:

Letter from Connecticut Association of School Based Health Centers



December 9, 2013

Ms. Ranbir M. Bains, APRN  
34 Old New England Road  
Wolcott, CT 06716

Dear Ranbir,

I am writing to confirm that the Connecticut Association of School Based Health Centers has granted permission for you to use the de-identified data contained in the Clinical Fusion database as part of your doctoral program at the University of Connecticut School of Nursing. The Clinical Fusion database is utilized by the School Based Health Centers (SBHCs) in the state for the collection of demographic and visit data for students that are enrolled in the Centers and use the health services. I understand that the de-identified data will be used for the purposes of studying the utilization of mental health services in SBHCs in CT using the database.

It is understood that the information contained in the database may be used in aggregate format and will not be utilized to identify any individual person or school in accordance with protected health information.

Please do not hesitate to contact me if you have any questions. I may be reached by phone at 203-230-9976 or by email at [jesse@ctschoolealth.org](mailto:jesse@ctschoolealth.org).

Sincerely,

Jesse White-Fresé, MA, LPC  
Executive Director

**Healthy Kids Make Better Learners**

CASBHC

P.O. Box 771

North Haven, CT 06473  
[www.ctschoolhealth.org](http://www.ctschoolhealth.org)

203-230-9976

## **Appendix C**

University of Connecticut (IRB-5)

IRB Approval



**DATE:** February 24, 2014

**TO:** Regina Cusson, Ph.D.  
Ranbir Bains, MSN, APRN, Student Investigator  
Nursing, Unit 4026

**FROM:** Jaci L. VanHeest, Ph.D.  
Chair, Institutional Review Board  
FWA# 00007125

**RE:** Exemption #X14-031: "Utilization of Mental Health Services in School Based Health Centers in Connecticut"  
*Please refer to the Exemption# in all future correspondence with the IRB.*  
Funding Source: Unfunded  
***Approved on: February 24, 2014***

The Institutional Review Board (IRB) reviewed the "Request for Exemption" for the research study referenced above. According to the information provided, the IRB determined that this research is exempt from continuing IRB review under 45 CFR 46.101(b)(4): Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Since this study involves the analysis of a de-identified dataset, the IRB has determined that the study referenced above meets the criteria for Waiver of Informed Consent stated in 45 CFR 46.116(d) as follows:

- The research involves no more than minimal risk to the subjects;
- The waiver or alteration will not adversely affect the rights and welfare of the subjects;
- The research could not be practicably carried out without the waiver or alteration; and
- Whenever appropriate, the subjects will be provided with additional pertinent information after participation in the study.

The principal investigator must notify the IRB immediately of any changes that may affect the status of the research study referenced above.

All investigators at the University of Connecticut are responsible for complying with the attached IRB “Responsibilities of Research Investigators”.

**Any proposed changes that may affect the exempt status of the research study must be submitted to the IRB for review and approval prior to their implementation.**

Attachments:

1. Validated Appendix A Form
2. Validated IRB-5
3. “Responsibilities of Research Investigators”